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Editorial

The Department of Education, University of Allahabad, is presenting a combined issue of its Annual Peer Reviewed Journal "Researches and Studies". It has continuously served as an academic platform to the researchers and scholars of education to disseminate their research findings to the world of academics in different domains of education. The department is coming out with 68 – 71 volume as a compilation of research papers and abstracts of doctoral work during 2016 – 2019.

The present volume includes studies from various branches of educational researches such as Educational Philosophy, Educational Psychology, Educational Sociology, Educational Technology, Educational Management, Teacher Education and Economics of Education as well as some current issues in Education. More specifically the research papers and abstracts published in this combo volume are from – Emotional Intelligence, Leadership Styles, Job satisfaction, Social Media, Mental Health, Sex Education, Professional Competence, Scientific Creativity, Scientific Aptitude, Inclusive Education, Ecological Literacy, Relevance of MOOCs, Sustainable Development, Concept of Theory, Impact of Video Conferencing, Cost Benefit Analysis, Right to Education, Examination Stress, Quality of Education & Supervision Practices, Problem solving ability and Interest, etc.

I extend my heart full thanks to senior stalwarts of education like Prof. P. C. Saxena, Prof. K. S. Misra and Prof. P. K. Sahoo, who have always been a source of inspiration and guidance to this academic endeavour. Members of Reviewer Board Prof. Vidya Agarwal, Prof. Usha Mishra, Prof. D. R. Singh, Prof. Pratibha Upadhyay, Prof. S. Raghuvansh and Prof. Ashish Saxena have always extended their academic services in bringing out this issue.

I also thank our younger colleagues Dr. Ruchi Dubey, Dr. Akanksha Singh, Dr. Saroj Yadav and Dr. P. K. Astalin, who not only contributed but worked day and night to come this venture true.

Dhananjai Yadav
Editor In Chief

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Research Papers

D. Phil. Abstracts

Emotional Intelligence in Relation to Leadership Style among Secondary School Teachers

Prof. Anil Shukla[*]
Shruti Malviya[**]

Abstract

This study was undertaken to study the relationship between emotional intelligence and leadership style among secondary school teachers. The sample consisted of 300 teachers of private U.P. Board Schools. Test of Emotional Intelligence(School Teacher Form) of K.S. Misra and Leader Behaviour Description Questionnaire-Self by Andrew W Halpin : Adapted form were used as tools for the study. Analysis of data was done by computing product moment co-efficients of correlation. The main findings were- emotional intelligence is not related to initiating structure and consideration among male teachers. Emotional intelligence is positively related to initiating structure and consideration among female teachers.

Emotional intelligence is the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth (Mayer & Salovey,1997). Ishak, Mustapha, Mahmud and Ariffin (2006) suggested additional domains (spirituality and maturity) and subdomains (intention, interest, compassion, and helping others) that described emotional intelligence of the teachers. Sanders(2009), Bumphus (2008) indicated a positive relationship between emotional intelligence and leadership but Condren (2002) concluded that the overall emotional intelligence is not related to specific areas of leadership. There is a positive relationship between emotional intelligence and personality(Kappagoda, 2013, Jackson,2008) ,adjustment (Thilagavathy,2013)) and conflict management styles (Farzadnia ,2014).

The term "leadership style" refers to a leader's manner of behavior in a work situation. According to Fred E. Fiedler, one's leadership style depends on one's

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personality and is therefore relatively fixed. Hardman(2011) and Rautiola (2009) found that leadership styles were statistically significant predictors of student achievement. Ko (2006) and Noland(2005) indicated a correlation between teachers' leadership and students' motivation. Transformational leadership, authoritative leadership and situational leadership influences students discipline at the school (Kanana, 2012). There has been found a significant correlation between leadership style and school climate (Williamson,2007). In the three leadership styles- transformational leadership, transactional leadership and laissez-faire leadership- perceived transactional leadership was reported with the highest scores(Ko,2006). There has also been a report of employing transformational leadership style more than any other (Sloan,2009 & Shelton,2008).Good leadership encompasses both 'transformational' and 'transactional' styles(Nyenyembe, Maslowski , Nimrod & Peter,2016). The leadership style of "high initiating structure and high consideration" should be preferable and effective in terms of nearly all of the climate and affective measures (Cheng,1994).

Objective of the Study:

1. To study the relationship between emotional intelligence and leadership style of male teachers
2. To study the relationship between emotional intelligence and leadership style of female teachers

Hypothesis of the Study:

1. There is no significant relationship between emotional intelligence and leadership style of male teachers.
2. There is no significant relationship between emotional intelligence and leadership style of female teachers.

Methodology: The sample consisted of 300 teachers of private U.P. Board Schools.150 male and 150 female secondary class teachers of 30 private U.P. Board schools were included in the sample. Test of Emotional Intelligence (School Teacher Form) of K.S. Misra and Leader Behaviour Description Questionnaire-Self by Andrew W Halpin : Adapted form were used as tools for the study. Product moment co-efficient of correlation were computed for the analysis of the data.

Result and discussion:

Table 1

Correlation between emotional intelligence and initiating structure dimension of leadership style of male and female teachers

Groups	N	Values of Correlation
Male teachers	150	.048
Female teachers	150	.423**

**Significant at .01 level

Observation of the Table 1 shows that the values of correlation between emotional intelligence and initiating structure dimension of leadership style for male and female teachers are .048 and .423 respectively. The former is not significant at .05 level while the latter is significant at .01 level. So, it can be inferred that emotional intelligence is not related to initiating structure leadership style among male teachers, while for the female teachers emotional intelligence is positively related to initiating structure style of leadership.

Table 2

Correlation between emotional intelligence and consideration dimension of leadership style of male and female teachers

Groups	N	Values of Correlation
Male teachers	150	.083
Female teachers	150	.482**

**Significant at .01 level

Observation of the Table 2 shows that the values of correlation between emotional intelligence and consideration dimension of leadership for male and female teachers are .083 and .482 respectively. The former is not significant at .05 level while the latter is significant at .01 level. So, it can be inferred that emotional intelligence is not related to consideration leadership style among male teachers, while for the female teachers emotional intelligence is positively related to consideration leadership style.

Thus, it can be concluded that emotional intelligence is not related to initiating structure and consideration leadership style among male teachers. While emotional

intelligence is positively related to initiating structure and consideration leadership style among female teachers. It means that female teachers with high initiating structure or high consideration have high emotional intelligence.

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Comparative Study of Job Satisfaction of Faculty Members of Self Financed and Government Financed Courses at University and College Level

Ruchi Dubey[*]
Shalini Tiwari[**]

Abstract

Job satisfaction studies are valued for both humanistic and financial benefits. Within educational context it becomes even more crucial as it determines the quality of education. The present study attempted to compare job satisfaction of faculty members of self financed and government financed courses of University of Allahabad .A sample of 100 faculty members was taken in which 50 belonged to self financed and rest 50 were of govt. financed. Teacher Job Satisfaction Scale (TJSS) by Gupta and Srivastava (1980) was used as a tool to measure job satisfaction. For comparison t-ratio was computed, which was found to be significant at 0.01 level. Thus findings of the study clearly indicated that self financed faculty members were less satisfied than those of government financed courses as their mean score was higher. In present scenario every institution wants to run self financed courses due to acute dearth of funding thus satisfaction of their faculty members must be ensured otherwise future of our students will be at stake.

Job satisfaction is an essential part of any progressive institution to be developed. The teaching profession faces challenges that continuously reconfigures knowledge, rules, skills, attitudes and ways of professional development (Massari, 2015).There are many variables that may attribute to a teacher's level of job satisfaction including workplace conditions, pay, relationships with staff, student behaviour, parent participation and supportive administration (Abu-Taleb, 2013). Swadia (2016), analysed job satisfaction among university teachers by taking into account both intrinsic and extrinsic factors affecting it and found the effect of age, gender, marital status, education, occupational level and length of employment on the job satisfaction of academicians. Rastogi etal. (2016), did a comparative analysis of job satisfaction among male and female faculty members in self financed colleges of western Uttar Pradesh. Gius (2015), found that private school

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teachers are much more satisfied with their chosen profession than their public school teachers. Panda(2001), found that there was no significant difference between the government college teachers and non-government college teachers in respect of their job satisfaction. Ambrose, Huston and Narman(2005) qualitatively investigated faculty satisfaction and retention of a private university over a period of two years and found that salary was one of major factor. Malini(2006) assessed the personality traits and job satisfaction of arts and science college teachers of self- financing courses. Ch' ng etal.,(2010) discovered that management support, salary, promotion opportunities are significant in determining job satisfaction of Penang private college lecturers. Tomar and Kapri(2019) found that maximum number of teachers of self financed Teacher Education Colleges were average or moderately satisfied, none found to be extremely dissatisfied. Research has found that teachers who have higher level of job satisfaction are less likely to leave the field of education and put future of students at risk (Larkin etal., 2016). Thus the present study aims to compare job satisfaction of faculty members of self financed and government financed courses of University of Allahabad

Objective: The objective of the study is as follows-

To compare the job satisfaction of faculty members of self financed and government financed courses of University of Allahabad

Hypothesis:

To achieve the above mentioned objective the following hypothesis was formulated and tested-

There is no significant difference between the job satisfaction of faculty members of self financed and government financed courses of University of Allahabad.

Methodology:

The sample of the study comprised of 100 faculty members of University of Allahabad and its affilitated colleges. Out of which 5o faculty members belonged to self financed and rest 50 of government financed courses. Teacher Job Satisfaction Scale developed by S.P. Gupta and J.P. Srivastava (1980) was used as a tool for the study. It consists of 80 items belonging to 20 dimensions. For each item responses on 5 point Likert scale were taken from strongly agree to strongly disagree.14 items were negative, thus their scoring was done as 1,2,3,4,5 and for rest items scoring was done as 5,4,3,2,1 respectively. For the analysis of data t-ratio was calculated.

Results and Discussion:

Table 1

Mean, S.D. and t-ratio showing the difference in job satisfaction of faculty members of government and self-financed courses

Sample	N	M	SD	t-ratio
Govt. financed	50	322.72	30.45	2.79*
Self - financed	50	303.68	36.85	

*significant at .01 level

The above observation of the table clearly indicates that null hypothesis is rejected as t-ratio is significant at .01 level. This means that there is a significant difference between the job satisfaction of faculty members of government financed and self financed courses. Higher mean scores for government financed courses implies that the faculty members of these courses are more satisfied than those of self financed courses. This finding corroborates the findings of Malik (2013), Khan (2012) and Kayalvizhi and Chakkanathan (2011). Malik also found t hat adhoc basis faculties are highly dissatisfied than regular teachers in degree colleges. Khan reported that government college teachers are more satisfied than private college teachers. Kayalvizhi and Chakkanathan found that lecturers employed in self financing colleges are extremely dissatisfied. However contrary are the findings of Barman and Bhattacharyya (2017), who reported that teacher educators working in different govt. aided and private B.Ed. colleges are overall satisfied with their job.

Thus on the basis of the findings of the study it can be concluded that the faculty members of the self financed courses are comparatively less satisfied than those of the government financed courses. The findings of the study implies that efforts should be made on the parts of authorities of higher education and managing committees of tbe educational institutes to take strict actions to enhance the job satisfaction of the faculty members as self financed courses are the need of the hour and in the absence of the satisfied teachers even the best education system is bound to fail and collapse.

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Indulgence with Social Media and Mental Health

Dr. Akanksha Singh*

Abstract

Addiction of Internet at very early age is very harmful for our teenagers. It is common feature that parents and child enter into arguments over the use of electronic gadgets and internet. Especially overindulgence with social media affects individual's mental health. Recent violent incidents among teenagers and discussion with specific group of parents attracted researcher to find out why a group of girls are undergoing anti depression treatment. This phenomenological study is based on 20 adolescent girls of urban setting undergoing mental health related problems; emerged while discussion with their parents. The Purpose of present paper is to understand the mental health problems of that particular group of adolescent girls and how school and home can intervene for their well-being.

In 2017 sad incident took place in our society where one teenager killed his own mother and sister in fit of anger. Another incident took place in Yamuna Nagar where a class twelfth student shot dead his school's principal inside her office with his father's revolver.

Eight year old student of school in Gurgaon was murdered by another senior student of that school inside the toilet. He did it with this thought that it would force the school to put off an exam and he wanted to avoid the parent teacher meeting. In Lucknow class sixth girl took six year old boy to the toilet and attacked him with a kitchen knife as she wanted to announce holiday. These incidents indicate that mental health of our teenager is not normal. It is true that there is no hard and fast dividing line between behavior that is normal and behavior that is not normal. But this kind of Pattern of behavior is not typical in the society. Mental disorders can be defined as disturbances of an individual's behavioural and psychological functioning that are not culturally accepted and that lead to psychological distress, behavioural disability, or impaired overall functioning. (Nietzel et al.1998)

Abnormal behavior which is not typical of Indian culture is due to changing scenario of the society. Family environments are deteriorating. Psychologist Aruna Broota says that Materialistic thrust reduces the Indian Values within the Indian socio cultural context. Inter generation conflict is very high. Addiction of Internet

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at very early age is also very harmful for our teenagers. It is common feature that parents and child enter into arguments over the use of electronic Gadgets and internet.

Mental health is an integral part of health and well being, as reflected in the definition of health in constitution of the World Health Organization "Health is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity."Mental Health, like other aspects of health, can be impacted by range of socioeconomic factors that need to be addressed comprehensively. Determinants of mental health are personal ability of an individual to deal with his or her emotions as well social, cultural, economic, political and environmental factors.

Report of World health organization (2017) says 20 percent of world's children and adolescents have mental disorders or problems and half of the mental disorders begin at the age of 14.According to National Mental Health survey of India (2016) prevalence of mental disorder in age group 13-17 years was 7.3% and nearly equal in both genders and nearly 9.8millions of children 13-17years are in need of active intervention. Common mental disorder includes depression, anxiety disorders and substance use disorders. Survey shows that prevalence of mental disorder is nearly twice (13.5%) as much in urban metros as compared to rural (6.9%) areas. It shows that adolescents of urban metros are more vulnerable to depression, anxiety and suicidal ideation.

Objective of present study was to find out the mental health issues of urban adolescent girls.

Methodology-

Initial survey was conducted with the parents of 20 adolescent girls and parents who accepted that their daughters are behaving differently. Initially they thought it is typical teenager trouble but closure watch shows that these girls are having too much mood swings and they are spending too much time with gazettes with internet connectivity. They look very tired all the time even without any symptom of disease. Further researcher selected 10 adolescent girls and tried to find out the relation between behavioral changes, social media usage and mental health.

Research questions of present study are

1. What kind of mental health problem is associated with adolescent girls?
2. What kind of intervention needed and
3. Role of school and home for better mental health.

Few relevant modules developed by world health organization were used for diagnosing depression. Researcher used phenomenological method for understanding the deeper issues.

Recommendation has been given to improve the school and home atmosphere for the adolescent girls.

Findings of the Study-

Study shows that girls are experiencing severe mood fluctuation; selected adolescent girls were spending too much time with electronic devices with internet connectivity. They feel very much anxiety without interacting on social media platform, internet is their daily doze, it is kind of new way of socialization, Now they spend comparatively more time on interacting with each other than earlier. Even few girls were taking anti depressant pills and parents were aware that their daughter is taking anti depressant pill. Family is spending less time together, in some cases parents complained that their teenager prefers to be in virtual company of their friends rather than with them.

Researcher requested these girls to write their routine of vacations as these days vacations were going on, Here is one sample of the routine of a girl.

"I usually get up 11 o clock during vacations as my winter vacation is going on, that too when any of my family member started insisting too much. I got up and lie down again as mother or father leaves the room. Finally after few minutes I get up around 11:30. After spending some time in bathroom around 12'o clock I start watching television with my breakfast. After spending two hours with television I start my day with instagram feeds, replying texts or group calls. Sometimes I perform both things television and mobile together although my parents keep telling me that it is not good to do both things simultaneously. Rarely some days I pick up a pen and draw just to make myself believe that I am not that useless. Drawing gives me satisfaction too. At night my parents snatch my phone away only then I tried to sleep otherwise if I get lucky I continue with my phone till late hours."

It shows how much disorganized routine they have. In busy metro life where both parents are working, teenager don't have strong disciplinary hand over him. They easily deceive their parents. They demand gadgets for educational purpose but very easily education take back seat and these platforms become the means of socialization. Teenagers are communicating more on private platforms for them like, comments and followers act as measurement of their popularity. In present study it was found teenagers prefer to avoid those social media sites where more and more adults are present like facebook. Instagram, Whatsapp and snapchat provide them more control in terms of account privacy. Now they are aware that whom to be friend without being caught by others. They spend most of the time in uploading their latest pictures and they judge their self worth through likes and comments. Over indulgence with online socialization make these teenagers disconnect them with their real surroundings.

Recommendations:

Abnormal behavior of these teenagers is because of newly found addiction of internet. Some are using these platforms to show their talent and some are wasting their creative years into useless watching of these content. Self obsession, obsession of clicking photographs, not being in moment but more engrossed in this thought "that how to tell a large audience about this moment". These tendencies are very much destructive for our young generation.

School and home both are facing the danger so both should promote healthy face to face socialization rather than socialization through various applications. It is not possible to snatch electronic devices from the teenagers as they are using it for educational purposes also it is essential to limit their online activity time. Schools should spare time for teaching relaxation techniques. Regular counselor should be appointed in school with whom students can discuss their problems and anxiety. Develop the habit of maintaining journal in which ask them to write their feelings it helps in flushing out negative thoughts. Irregular sleep pattern should be monitored. Friend time should be real not virtual. Outdoor activities should be enhanced. Understanding family and school atmosphere is indispensable, schools are caring for individual learning needs but while using disciplinary actions they forget about sensitive nature of few students because of that heinous crime are reported. Parents support helps teenager to cope up with anxiety and depression related disorders. Healthy life style is essential to cope up with any stress, anxiety and depression.

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Parent's and Teacher's Attitude Towards Sex Education in Schools

Dr. Chetna Pandey*

Destiny of any country is shaped in its classroom. To develop the well groomed future of our country, it is very important that the students of the nation should be healthy-physically and mentally both, which help them to develop a healthy personality. In the present era our teenagers are moving from traditional to western style due to fascination and which is proving to be disastrous for our society and themselves also. With changing times it has become necessary that we impart sex education to our teenagers. The physical and hormonal changes taking place in the body of teenagers make them curious to explore these changes. Added to all this, the increased amount of exposure through television, books, internet makes them impulsive to try what is forbidden. The 'sexual arena' is a hot topic among the adolescence currently and the absence of proper supervision can result in more harm than good. Their easy access to the modern technologies not only provide them with ample information about social and personal relationships, but also inadequate and absurd information about intimate and sexual issues, which motivate them and becomes the cause of many types of physical , mental and sexual diseases. To protect our future generation from all these things our parents, teachers and other members of the society should develop a positive attitude towards sex education. In India, mostly parents, teachers and elders of the family and society hesitate in discussing about sexual issues to their children. They are not allowed to have access to sex related information because the society has the perception that the exposure to such issues will corrupt the social system. To overcome or reduce the problem of hesitation between two generations Indian education system incorporated the sex education in schools. Teachers were provided with the guidelines for the content of the syllabus of sex education that has to be taught in the schools.

Burt defined sex education as' the study of the characteristics of beings: a male and female. Such characteristics make up the person's sexuality. Sexuality is an important aspect of the life of a human being and almost all people, including children, want to know about it. Sex education includes all the educational measures which - regardless of the particular method used - may centre on sex.' He further said that sex education stands for protection, presentation extension, improvement and development of the family based on accepted ethical ideas.

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Lipson sees sex education as instruction in various physiological, psychological and sociological aspects of sexual response and reproduction. Kearney (2008) also defined sex education as "involving a comprehensive course of action by the school, calculated to bring about the socially desirable attitudes, practices and personal conduct on the part of children and adults, that will best protect the individual as a human and the family as a social institution." Thus, sex education may also be described as "sexuality education", which means that it encompasses education about all aspects of sexuality, including information about family planning, reproduction (fertilization, conception and development of the embryo and foetus, through to childbirth), plus information about all aspects of one's sexuality including: body image, sexual orientation, sexual pleasure, values, decision making, communication, dating, relationships, sexually transmitted infections (STIs) and how to avoid them, and birth control methods. Various aspect of sex education are considered appropriate in schools depending on the age of the students or what the children can comprehend at a particular point in time. Rubin and Kinden also expressed that sex education is not merely a unit in reproduction and teaching how babies are conceived and born. It has a far richer scope and goal of helping the youngster to incorporate sex most meaningfully into his present and future life, to provide him with some basic understanding of virtually every aspect of sex by the time he reaches full maturity.

Many researchers have documented the need and justification of sex education. K.K. Toro (2012) found that in the absence of effective sex education, the immature adolescents make major decisions on sexual matters without knowing any consequences. Parents and teachers have favourable attitude towards the importance of imparting sex education in school. It is an ideal place for sex education as many children from various communities gather there. But teachers offering sex education often use more passive forms of learning and tend to disregard skill-oriented learning activities, others put sexuality in a larger developmental content including issues as self-esteem, setting goals and having respect for others. In India, there are conflicting interests among teachers, parents and students regarding sex education at school. On one side teachers often deliver biological information, whereas parents are more interested in moral education, but the students are looking to acquire more insight into practical issues regarding sexuality of same or opposite gender. It was asserted that the majority of people favour some sort of sex instruction in public schools, and this has become an intensely controversial issue because, unlike most subjects sex education is concerned with an especially sensitive and highly personal part of human life. But to remove the misconception regarding sex education it should be taught in the classroom. The answer to adolescents' sexual woes and pregnancy cannot lie primarily in school programmes which at best can only be remedial; what is needed is prevention education and as such parents should be involved.

When sex education is contentiously debated, the chief controversial points are whether covering child sexuality is valuable or detrimental; whether sex education should be integrated into the curriculum; the use of birth control such as condoms and hormonal contraception; and the impact of such use on pregnancy outside marriage, teenage pregnancy, and the transmission of STIs. On these issues, it was found that mostly parents and teachers have suggested that sex education should be taught in schools as they hesitate from discussing on this agenda to their developing children. They further added that sex education should be taught informally in schools, so that the child feel convenient and can discuss about various issues on which he or she can never talk to his parents as it being considered taboo as it is seen that mostly sex education includes shaming and fear-based instruction, gender stereotypes are promoted, majority of students receive no information about human sexuality except abstinence and the materials used regularly contain factual errors and distort the truth about condoms and STDs.

Furthermore a U.S. review concludes that "the overwhelming weight of evidence shows that sex education that discusses contraception does not increase sexual activity". The 2007 study found that "No comprehensive program hastened the initiation of sex or increased the frequency of sex, results that many people fear." Further, the report showed "Comprehensive programs worked for both genders, for all major ethnic groups, for sexually inexperienced and experienced teens, in different settings, and in different communities." The United Nations Population Fund (UNFPA) recommends comprehensive sexuality education, as it enables young people to make informed decisions about their sexuality. According to UNFPA," It is taught over several years, introducing age-appropriate information consistent with the evolving capacities of young people. It includes scientifically accurate, curriculum-based information about human development, anatomy and pregnancy. It also includes information about contraception and sexually transmitted infections (STIs), including HIV. And it goes beyond information, to encourage confidence and improved communication skills. Curricula should also address the social issues surrounding sexuality and reproduction, including cultural norms, family life and interpersonal relationships."

Thus sex education should include information regarding personal and social hygiene, physical and psychological changes that are seen at the time of adolescence which has to be accepted by them personally and socially without any hesitation, as it is a part of the developmental process of any species including human being. Comprehensive sex education does not only decrease the rate of pregnancies in teenagers, but also the problem of overpopulation. It also helps a lot in reducing sexually related crime, gender based violence and bullying and increases healthy relationship among opposite gender. A *Consultative Council for Health and Human Relations Education* has been established and its members

possessed considerable expertise in the area. The Council had three major functions:

1. to advise and to be consulted on all aspects of Health and Human Relations' Education in schools;
2. to develop, for consideration of the Government, appropriate curriculum for schools;
3. To advise and recommend the standards for in-service courses for teachers and relevant members of the school community.

In the current scenario, sex education to the teens should be considered as the responsibility of every parent and teacher. Right information can enlighten a teenager regarding the hazards related to sexual issues that can cause health problems. You should make your child conscious of the fact that "it is better to be safe than sorry." Studies have also shown that effective sex education to adolescence in school can increase the age at which they experiment with sex. Certain schools have introduced novel health and hygiene workshops that handle issues like health foods, usage of sanitary napkins, human anatomy and human reproduction. But the education system in India is still has disagreement about conducting workshops and programs within the school premises on sex education. Therefore sex education should be given to all children, who are 12 and above. The increasing incidence of teenage pregnancies and HIV in India makes it important that we give our children sex education, so that they get the right information rather than misconception.

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Professional Competencies for Prospective Teachers and Teacher Educators

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Abstract

Teachers play a vital role for educational system. Teachers are the backbone of any education system because the effectiveness of an educational system is largely determined by the quality of teachers. Professional competency is one of most required skill for prospective teacher and teacher educator. Competency standards are concerned with application of professional knowledge and skills within the workplace and are underpinned by teachers' professional values. Competence is usually associated with highly professional performance and there is a direct link in the field of education between a teacher's professional competence and pupil performance. This paper discusses professional competencies, Qualities that requires for Prospective teachers and Teacher Educators to develop their professional competency and suggests ways and means to improve it.

Teachers play a vital role for educational system. Teachers are the backbone of any education system because the effectiveness of an educational system is largely determined by the quality of teachers as they help in shaping and reshaping of the society and determine the quality of life in the society. According to the Indian Education Commission (1964-66), "Including of all the different factors, which influence the quality of education and its contribution to national development, the quality, competence and character of teachers are undoubtedly the most significant." Effective education can be achieved through the qualified, competent, committed and effective teachers. So there is a need to enhance the competency of the teachers because it enables them to adapting to change and innovation, conscious use of knowledge, abilities, skills, talents, values, attitudes and behaviour patterns, in order to resolve issues and problems, overcome challenges, fulfilling duties and achieving the aims proposed.

Professional Competency

Professional competency is a combination of two words, profession and competency.

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The word profession can be defined as an occupation in which one has a professed expertise in a particular area especially one requiring a high level of skill or training. In the case of teaching, teachers required pre- service and in-service teacher training, necessary skills and competence to work upon.

To determine professions, National Education Organisation has listed out the following points that are also carried out by teaching profession.

- To equip with intellectual tendencies.
- To acquire opportunities for various kinds of skills and abilities.
- To generate the desire for service than for personal gain.
- To generate its own standards.
- To provide opportunities for regular and systematic promotion during the period of service.
- To posses strong professional organization behind it.

The word competency includes skill, knowledge and motive (attitudes). Walker (1992), developed the following definition of competence, — "the attributes (knowledge, skills and attitudes) which enable an individual or group to perform a role or set of tasks to an appropriate level or grade of quality or achievement (i.e. an appropriate standard) and thus make the individual or group competent in that role".

Competence is generally associated with highly professional performance and has a direct link in the field of education between a teacher's professional competence and pupil performance. According to Westera (2001), there are two distinct meanings of competence in education:

1. From a theoretical point of view, competence is understood as a cognitive structure that facilitates specified behaviors.
2. From an operational point of view, competence seems to cover a broad range of higher order skills and behaviors that represent the ability to deal with complex, unpredictable situations.

The quality of teachers is of prime importance for the success of educational system. Teachers' competence includes the following three fundamental professional competencies:

1. Educational competencies- system of knowledge, skills, abilities and motivation dispositions to realize educational professional roles.
2. Programme competencies or course content competencies- system of knowledge and skills from the course content and developed activities to teach the students about the knowledge and skills.

3. Communication competencies- system of the knowledge, skills, abilities and motivational dispositions to realize the goals of communication and teaching social interaction.

As mentioned above competency also includes commitment. Commitment is a process that results from decisions. A teacher should be permanently committed to his work because teaching is classified as profession, it is not simply an occupation aimed at making money for livelihood but it is a social service for national development.

Qualities that requires for Prospective teachers and Teacher Educators to develop their professional competency

Professional Attributes

An effective teacher should possess following professional attributes:

- Interpersonal skills : Teachers should demonstrate good interpersonal skills by creating opportunities to communicate and share knowledge, ideas and experience with others. Teachers should devote to the educational, personal, social, moral and cultural development of their students and aim to teach them how to be life-long learners and active members of society.
- Motives : Motive is an urge to achieve one's goal. This continuous concern of goal achievement directs a teacher to perform better and better. So teacher educators should identify the motives (for self-development, learner's success, system or personal integrity etc.) for taking up teaching among prospective teachers.
- Ethical : Teachers should respect the rights of others by acting with consistency and impartiality. They should have an understanding of the principles of social justice and demonstrate this by making just and fair decisions.
- Effective Communication : According to the Concise Oxford Dictionary the word communication means 'the science and practice of transmitting information'. This definition clearly show the link between 'teaching' and 'communication' as teachers are constantly imparting new knowledge, or transmitting information. Teachers communicate with parents, students, colleagues and administrators every day, that's why communication skills are very important for teaching professions. To be effective, teachers should have good communication skills.

- Innovative : Teachers should creative and willing to take risks in order to find new and enterprising solutions to educational issues and are inventive when developing educational programs.
- Positive : Teachers should supportive and constructive in their interaction. They should flexible in an ever-changing work environment and are willing to consider critically and implement change. Teachers are advocates of their profession.

Pedagogical Skills and Knowledge

Pedagogy is a combination of skills and knowledge required for effective teaching.

According to Lovat, (2003) pedagogy is "a highly complex blend of theoretical understanding and practical skill". This research is highlighting the vast complexity of teachers' work and specifying just what the nature of that work truly is. Lovat further emphasises: a teacher is "a highly developed autonomous professional, with a requisite professional knowledge base and practitioner skills which could stand alongside the equivalent in medicine, law and engineering".

Effective teachers should have a rich understanding of the subjects they teach and appreciate how knowledge in their subject is created, organised, linked to other disciplines and applied to real-world settings. Teacher knowledge is fundamental to pedagogy.

Shulman (1987) defines seven categories to provide a framework for teacher knowledge which are:

1. Content knowledge
2. General pedagogical knowledge like classroom control, using group work
3. Pedagogical content knowledge
4. Curriculum knowledge
5. Knowledge of learners and their characteristics
6. Knowledge of educational contexts like schools and the wider community
7. Knowledge of educational ends purposes and values

Teacher educators are expected to be self-aware and to reflect and articulate tacit knowledge of teaching skills and make it available to prospective teachers to bridging theory and practice. Teacher educators' professional knowledge is expected to be more comprehensive, rich and extensive, both in terms of the

specific subject matter taught and in relation to areas such as didactics, pedagogy and psychology.

Personality Traits

Personality traits related to the professional role of a teacher, can nurtured and developed by the training. Through the effective personality traits teacher truly makes the difference in the lives of students. Some personality traits of an effective teacher are as follows:

- Prepared : The most effective teachers come to class every day ready to teach. It is easy to learn in their classes because they are ready for the day. They don't waste instructional time. They start class on time. They teach for the entire class period in an interesting way.
- Hold High Expectations : The most effective teachers set no limits on students and believe everyone can be successful. They follow the highest standards. Inspire their students to do their best. Build students' confidence and teach them to believe in themselves.
- Creative : The effective teachers are resourceful and innovative in how they teach their classes. Use technology effectively in the classroom.
- Fair : The effective teachers handle students and grading fairly. They allow all students equal opportunities and privileges. Recognize that "fair" doesn't necessarily mean treating everyone the same but means giving every student an opportunity to succeed. Understand that not all students learn in the same way and at the same rate, so careful and aware about every student.
- Display a Personal Touch : The effective teachers are approachable. They connect with students personally and Share personal experiences with their classes. Take personal interest in students and find out as much as possible about them
- Cultivate a Sense of Belonging : The effective teachers have a way of making students feel comfortable in their classrooms. Students repeatedly mentioned that they felt as though they belonged in classrooms taught by effective teachers. The students knew they had a good teacher who loved teaching and preferred it to other occupations.
- Compassionate : The effective teachers are concerned about students' personal problems and can relate to them and their problems.
- Have a Sense of Humor : The effective teachers do not take everything seriously and make learning fun. They use humor to break the ice in difficult situations. Bring humor into the everyday classroom.

- Respect Students : The effective teachers do not deliberately embarrass students. Teachers, who give the highest respect, get the highest respect. They respect students' privacy when returning test papers. Speak to students in private concerning grades or conduct. Show sensitivity to feelings and consistently avoid situations that unnecessarily embarrass students.
- Forgiving : The effective teachers do not hold grudges. They forgive students for inappropriate behavior. Habitually start each day with a clean slate. Understand that a forgiving attitude is essential to reaching difficult students. Understand that disruptive or antisocial behavior can quickly turn a teacher against a student, but that refusing to give up on difficult students can produce success.

Above are some attributes, traits and skills that an effective teacher should posses but now the question arises that how this effectiveness can be developed and improved?

How to Improve Professional Competency

A lot of efforts and plannings are done in last few years to improve the quality of teacher education at national and state level. By adopting following measures one can improve his/her professional competency.

- Capacity building programmes : For capacity building, teachers should attend the various academic programmes like Refresher courses, Orientation programs , workshop, Seminar, Symposium etc. conducted by the different educational agencies at national and state level like NCERT, UGC, SCERT, DIET. These programmes enhance their professional competency.
- Integration of technology : Integration of technology in teacher education has proved to be effective at many teacher training institutions worldwide. New technologies have been introduced in the field of education, still our teacher-education could not raise up to the expected level. It is lacking behind somewhere in realizing its purpose. Due to the advancement in science and technology, the world has become interdependent and is turning gradually into a global village. But educational programmes for teachers or teacher-education has not made full use of their development skill. Present teacher education programmes are not involved the knowledge of latest technological advancement that's why they produced such types of teachers who are not able to use of upcoming techniques according to the requirement of students of new generation. Therefore

techno-pedagogical skills should introduced in the teacher training programmes.

- Developing Creativity : Development of creativity is very essential for the all-round development of human being. As we know that knowledge cannot be delivered, it has to be created. It means we should emphasis on skills like problem solving, critical thinking, analysis, syntheses. .
- Reforms in Teacher-Education Institutions : The National Council for teacher- education (NCTE) is a regulatory body which controls the functioning of teacher –education institutions and prevent them from becoming commercial institutions, but because the country is so diverse with numerous institutions, it sometimes get difficult to monitor all the institutions. Some unscrupulous institutions have become simply money making centre and produce certified but incompetent teachers which is a matter of great concern because incompetency of teachers can harm the system of education. So there is a requirement of strict policies, and reforms in norm and regulation to change present scenario of teacher – education institutions for producing competent and committed teachers
- Developing Life Skills among prospective teachers : Life skills are certain skills which are essential for personal development and growth. These skills enable man to deal with the life's difficulties and adversities more effectively. These skills are thinking skills, self-awareness, problem solving, creative thinking, decision making, critical thinking, social skills – interpersonal relations, effective communication and empathy, emotional skills – stress management. Main issue is that teacher-education is memory based i.e. there is no active involvement of students, so we are lacking in the development of life skills among the students, which are essential for all round development of students.
- Sensitization towards Social Issues : There are various social problems and issues that today our nation is facing. These are population explosion, unemployment, diversity and communal tension, depletion in the mental and physical health condition. Teacher can safeguard students against these social problems if they are sensitive towards these issues.
- Structure of Teacher-Education Programme : A lot of stress is given on teacher education course in India, unfortunately still there are several loopholes in the system. are - Curriculum of teacher education porgramme in India has been criticized much. Some educationists feel that it does not fully address the need of contemporary Indian Schools and society and it does not contain relevant contents for teachers who are to impart quality

education in schools. Quality in education relates to the quality of the work undertaken by a teacher, which has significantly effect upon his / her students. Teacher education has not come up to the requisite standards. Teachers are not able to think critically and solve the issues related to teaching methods, content etc. More emphasis has been given on the knowledge of theoretical principles not on the practical principles therefore teachers are not able to practice these theoretical principles in actual classroom situations.

Suggestion to Improve Teaching Competency

- Inculcate value Education: Value education should be given to teachers, so that they could educate young minds in the right direction.
- The quality of teacher education programme should be up graded.
- Teacher education institutions should be put under strict control of regulatory body for the selection of teacher, students and provisions of good infrastructure etc.
- Institutions working should be examined time to time.
- Teachers should train about stress management mechanism so that they could help students in managing the stress and sustaining themselves in this time of social isolation, parental pressure and cut throat competition.
- Teachers should be able to think critically make right decisions and maintain harmonious relations with others.
- Teacher education programmes should enables the teachers to develop there life skills among students.
- Techniques used in teaching should develop habit of self learning and reduce dependence on teachers. It will help them to reflect on their own and doing something new. Doing something new is creativeness.
- Teachers must understand the importance of the constitution in its true prospective in the light of Indian Culture ethos and integrate it with the philosophy of education.
- Teachers should prepare to own responsibility towards society and work to build a better world, commitment to justice and zeal for social reconstruction.
- The impact of science and technology and ICT on society and education should be fully discussed in teacher educations institution.

- Scientific attitude and temper should be developed and its application for the solution of problems of life should be encouraged.
- New knowledge and new experiences should be incorporated in the curriculum and there should be a scope for teachers for reflection of knowledge.
- Educational institutions should be graded according to the standards of the institution and admission should be allowed according to standard of the institutions.

Conclusion

Teaching requires expertness which proliferates over the time. Professional development refers to skills and knowledge attained for personal as well as career development. Thus it can be concluded that professional development of teachers is the need of the hour and in the long run, the nation growth depends upon the competence and professional outlook of teachers which in turn is dependent upon their professional pedagogical skill, knowledge and on their personality traits. It can improve by doing rigorous effort and commitment towards her/his profession. If we want to develop and improve professional competency among our teachers, there is a need to modify and restructure our educational policies, norms, measures and framework.

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Rejuvination of Teacher Education

Dr. Saroj Yadav*

Abstract

Success of a real teacher is not measured by the percentage of passed students only, not even by the quality of his contribution to knowledge, but through the quality of life and character of his students. For getting these competencies, a teacher should be prepared through a regular training or orientation program in these directions. But very less emphasis is given on the professional development regarding the character building and inculcation of values. Development of professional attitude is the one of the objective of teacher education program, but very less emphasis is given for this purpose. Without having the positive attitude about the teaching profession, teachers can not become competent and sincere about their profession. Teacher Trainees should prepare an effective lesson plan, anticipate students' questions, maintain discipline and involve students in the lesson. For rejuvenation of teacher education, certain rules and procedures should be followed by all the colleges of different universities. Admission test should include aptitude test, presentation, interview etc., so that professionally dedicated teachers can enter in the teaching profession. Research and field experiments should be promoted improving the quality of teaching. Evaluation and monitoring should be the integral part of teacher education program

The changing role and accountability of teachers' effectiveness have been increasingly studied and analyzed these days. Outcomes of these researches are feedback into the system to facilitate the process of educational reform. The current focus of researchers, policy makers and practitioners with regard to teacher education is on the development of professional competencies, accountability, commitment and motivation for higher-level performance on the part of teachers. In addition to it, important possibilities are arising with regard to current developments involving the new information and communication technologies. As a result, teacher education in India is on the brink of a major transformation.

Major goal of teacher education program at all stages has been to produce good learners in terms of responsible, prescriptive and descriptive with moral overtones. Teacher should enable to develop their own free judgment and a sense of

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intellectual independence. Teacher should be self motivated so that he can contribute positively in the quality improvement of education. Ministry of Human Resource Development is starting new courses of teacher education program. These courses are four year integrated pogramme, B.A. B.Ed. for art stream students and B.Sc. B.Ed. for science stream students. Thus students can enter in these courses even after intermediate. In two year B.Ed. and M.Ed. integrated courses, internship of six months is compulsory. Some relevant subjects like ICT, Moral education, Yoga, Fine arts, Performing Arts, Content Knowledge etc. has been included. This is the time when new curriculum of two year teacher education program is being implemented. Proper implementation of this curriculum is itself a big challenge. It is the time for inclusive education which leads to the demand of special teachers and educators. Internship in teacher education has been also started. Advantages of internship are as follows-

- Classroom teaching experience.
- Get chance to work under experienced teachers who act as mentor.
- Get the opportunities to see how a school operates.
- Get feedback on teaching skills.
- Teacher trainees can get the experience of attending teachers meeting and PTM.
- The semester long internship provides student teachers many opportunities within diverse classroom settings to refine the knowledge, skills and dispositions, they have developed as active participants in Teacher education program.

India has a large number of populations so needs many more teachers for this big population. All the processes of teachers' recruitment, training, motivation, retention, feedback etc. have to be planned on a large scale. Aim of in-service teacher development should be to ensure that optimal learning takes place in the classrooms. Some major aims of In-service teacher education program are as follows-

- To utilize all possible kinds of institutions, including university departments of education and teacher training institutions in the private sector, for in-service training of teachers at all levels.
- To recognize teacher education for all levels of school education, from pre-school to senior secondary as a sector of higher education and to

facilitate co-operation between institutes of teacher training and colleges of general education or universities with a view to enabling interaction between different departments of a local college and the institute of teacher training.

- To envision a comprehensive model of teacher education, ensuring that progress towards a new, comprehensive model is paralleled by necessary modifications in policies of teacher recruitment, deployment and service conditions including emoluments.

Rejuvenation of Teacher Education

The Department of Teacher Education has initiated the process of revision of the Teacher Education Scheme. The revised Scheme is guided by the following factors:

- To integrate teacher education with overall education development in the States.
- The need for expansion of capacity of teacher education institutions, especially in some of the deficit States of East and North-Eastern Regions.
- Concern the problem of large number of untrained teachers and the possibility of large number of persons being recruited without possessing the prescribed professional qualification.
- Expanding institutional capacity to provide in-service training for secondary school teachers in light of the Rashtriya Madhyamik Shiksha Abhiyan.
- Strengthening the decentralized structures of BRCs and CRCs to provide adequate institutional support for professional development of school teachers on a continuous basis.
- To link elementary teacher education with the higher education system.
- To develop and put in place a mechanism to monitor the implementation of the Scheme on various physical and financial parameters with pre-defined outcomes. Its purpose is to improve the overall quality of various activities of the teacher education institutions.

While articulating the vision of teacher education, the National curriculum Framework has some important dimensions of the new approach to teacher education.

- Reflective practice to be the central aim of teacher education.
- Student-teachers should be provided opportunities for self-learning, reflection, assimilation and articulation of new ideas.
- Developing capacities for self-directed learning and ability to think, be critical and to work in groups.
- Providing opportunities to student-teachers to observe and engage with children, communicate with them.

Major Challenges of Teacher Education

Student teaching internship has been very popular within the past five years. Most Universities have the programs to help recent graduates get a head start in their teaching careers. An internship program helps prepare aspiring teachers for their future in Education. Internship in teaching includes practice teaching and wide variety of field experiences under the guidance of a competent supervisor. Teacher trainees evaluate his theoretical understanding which is acquired through pedagogy classes. The term internship is directly borrowed from the medical profession. Philosophy of internship is basically pragmatic. Internship in teaching includes practice teaching and wide variety of field experiences under the guidance of a competent supervisor. Teacher trainees evaluate his theoretical understanding which is acquired through pedagogy classes. They share all the significant experience going on in the school environment; develop meaningful skills and attitudes towards his profession. According to Mangla, S. (2010), "teacher training can never become active partners in developing teacher's competence, enhancing his performance in the school and all the theory he learns in education philosophy, psychology, school organization and techniques of teaching are applied in the school situation. The opportunity for this application can be given to the student teachers only in a program of internship in teaching." New curriculum of two year teacher education program with 20 weeks of internship has been implemented from the session 2015-16. Student teachers as well as teacher educators are facing different types of problems and experiences and they are worry about the proper implementation of the internship program in coming semesters of teacher education. Availability of schools for internship is the major problem before the teacher education institutions.

Teachers have no experience in methods, techniques and approaches like small group interaction, group activities, laboratory and field studies etc. Methods of teaching are lacking innovations also. Methods of teaching should be recognized according to the need of the changing demand of education system; special

innovative programs such as seminars, workshops, co-operative learning etc. can be conducted. Theory and practice of the curriculum of teacher education should be complementary to each other. But this aspect is also not considered as important. So there is artificiality in the courses of studies in theory and practice.

Success of a real teacher is not measured by the percentage of passed students only, not even by the quality of his contribution to knowledge, but through the quality of life and character of his students. For getting these competencies, a teacher should be prepared through a regular training or orientation program in these directions. But very less emphasis is given on the professional development regarding the character building and inculcation of values. Development of professional attitude is the one of the objective of teacher education program, but very less emphasis is given for this purpose. Without having the positive attitude about the teaching profession, teachers can not become competent and sincere about their profession.

In many teacher education institutions, there is lack of physical resources such as laboratory, library, teaching learning materials etc. These institutions also face much difficulty in getting schools for practice teaching program. Most of the teacher education institutions has the shortage of teachers. Their number is according to the norms of NCTE, but only on the paper. There is no proper regulation of demand of specific subject teachers and their supply also. There must be suitable number of teachers for each subject. State Education Department has planning unit which can help in the regulation of demand and supply of teachers of various subjects and levels.

In conventional system of teacher Education, there is very less interaction with the main academic stream of a university. There should be interaction of teacher education department with the departments of other streams and subjects like Science, Fine arts, Physical Education, Music, Psychology, Sociology, Philosophy etc. Inter-disciplinary approach is essential for the quality improvement of teacher Education. There is inadequate base of empirical research in various fields of teacher education. Research should be conducted comprehensively to realize the goals of teacher education. Results of these researches should be properly utilized in designing the curriculum, evaluation and innovative techniques of teaching in teacher education. Financial problem is also one of the problems in teacher education for Government aided as well as Self-financing institutions. Due to the lack of grants, many institutions have shortage of physical as well as human resources.

Remedies of the Challenges

This is the critical phase of the implementation of internship in Teacher education programme. So we are facing many difficulties and challenges. But slowly we will be able to manage and overcome all these problems. Slowly schools may allow happily to teacher education institutions for internship. There is the need of special training of teacher educators through workshops. On the basis of need of teachers in schools, where numbers of teacher is very less, student teacher can go for internship in those schools. They need training in the art of guiding and supervising the student teachers. They should know about their responsibilities during the internship programme. Duration of internship should be less than 20 weeks. There should be active involvement of M.Ed. students in the activities and teaching of teacher education institution during internship.

Isolation of different types of teacher education programs like Pre-primary, primary, Secondary and college should be removed. There must be vertical integration among them, so that most of the facilities and resources can be shared by them. Teacher educators should also receive the training in techniques and methods for their supervisory-tutorial role. For this purpose, their In-service training must emphasis on these aspects.

In India, there are variety of schools like government aided school, private school, urban and rural school, boys' school, girls' school and co-educational schools etc. so teacher should be prepared for real schools. They must have the abilities to understand the school situation, students, class size, lack of teaching facilities, work load, supplementary teaching materials etc. India has a large number of teachers and needs many more. All processes of teacher recruitment, training, motivation, incentives, retention and feedback therefore have to be planned on a large scale. Further the ultimate goal of in-service teacher development should be to ensure that optimal learning takes place in the classrooms. Efforts should be made to enhance the institutional capacity available at present for ensuring the adequate supply of trained teachers for all levels of school education. There must be proper utilization of all possible kinds of institutions, including university departments of education and teacher training institutions in the private sector, for in-service training of the existing cadre at all levels, in addition to State institutions, including CTEs.

Attempts need to be made for self motivated teachers to become innovative and creative. According to Mangla,S.(2010), "Pedagogy should be improved and a shift in favor of androgogy from pedagogy should be should be improved and a shift in favor of androgogy from pedagogy is a need of today." Teachers have to

perform the responsibility to develop humanizing dimensions of the child and to give discipline orientation. So he must have the experience of construction and use of new type of tests, assessment of assignments, preparation of syllabus, maintaining records of all types for academic, emotional, social and moral development of the child. He should have the experience to understand the behavior of the students and to guide them. They must have the experience of the organization of co-curricular activities, preparation and use of audio-visual aids and other activities in a comprehensive and effective manner. So during the school internship program, these particular experiences should be provided to the teacher trainees.

Conclusion

Teacher trainees should know the Psychology of learners, so that they can deliver lessons in a way that is effective and comprehensible to all students. They should prepare an effective lesson plan, anticipate students' questions, maintain discipline and involve students in the lesson. For rejuvenation of teacher education, certain rules and procedures should be followed by all the colleges of different universities. Admission test should include aptitude test, presentation, interview etc., so that professionally dedicated teachers can enter in the teaching profession. Research and field experiments should be promoted improving the quality of teaching. Evaluation and monitoring should be the integral part of teacher education program. The curriculum for teacher education should be developed in co-ordination with NCTE, UGC and institutions. Innovation and experiments should be encouraged.

There should be serious concern about the quality of practical training in teaching. Teacher educator who practices conventional lectures themselves inadequately equipped to guide the teacher trainees in innovative instructional training and teaching methods. The teacher educators need rigorous training in various aspects related to the innovative techniques like action research, group teaching, co-operative learning, constructive approaches of teaching and learning. There is also need of social sensitivity, social, cultural and economic awareness among teacher trainees confronting present Indian scenario.

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Scientific Creativity among Secondary Students in Relation to Achievement in Mathematics

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Abstract

The present study was conducted on 200 high school students of Bhadohi district of U.P. The main aim of the study was to assess the relationship between achievement in Mathematics and scientific creativity. Verbal Test of Scientific Creativity of V. P. Sharma and J. P. Shukla was used for collection of data. Marks obtained by the students in Mathematics in final examination served as an index of achievement in Mathematics. The results of the study indicates that achievement in Mathematics is positively related to total scientific creativity, fluency and flexibility aspects of scientific creativity

Education is the axis for development of human life. Education is the means through which an individual makes himself capable and uses his energy and power in right direction. As the child grows up and comes in contact with the family and society, his physical, mental, intellectual, emotional and social development takes pace. These different aspects of development provide a new dimension to his personality. The main base of this development begins from pre-natal stage and continues till death, in between his, it passes from infancy, childhood, adolescence and adulthood stages. Adolescence is an important stage in the stages of development. It lasts from 12-18 years. Students at secondary classes are mostly in adolescence period and being a student, their mental and intellectual development is very important at this stage. Mental development means development of mental abilities like, thinking, reasoning, perception, problem solving ability etc. At this stage, adolescents tries to search for informations, concepts, intellectual abilities, attitudes, social intelligence, habits etc.

In the present times importance of secondary education has increased due to problem of unemployment and need of vocationalization of education. Curriculum has been diversified at this stage so that students can choose their subjects according to their need and interest. Keeping in view their future vocation, different commissions and committees had emphasized cognitive and intellectual development as an important aim of secondary education, subjects like Mathematics and Science are made compulsory till high school stage so that

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cognitive abilities like thinking, problem solving, reasoning etc. can be developed. According to Effandi and Normah (2009), a student needs to think and make decisions using appropriate strategies to solve Mathematics problems. They add that students' success in achieving their goals encourage them to develop positive attitude towards Mathematics and other problem solving activities. To a large extent problem solving is related to cognitive abilities and cognitive abilities also play an important role in Mathematics. Previous studies had shown that intelligence increases achievement in Mathematics. Achievement in Mathematics is also affected by gender. Effendi and Norwah (2009) and Patterson et al. (2003) claim that males are more successful at Mathematics than their female counterparts. Hyde (2008) reported no difference in Mathematics among male and female students. According to House (1975), learning environment and academic self-concept are important factor for achievement in Mathematics. Low achievement in Mathematics is due to increased anxiety (Brian & David, 2003). Bharadwaj and Maurya (2010) found positive relationship between creativity and achievement in Mathematics. Creative thinking is not possible without cognition, memory, divergent thinking and evaluation. Treffinger and Paogio (1972), and Treffinger, Renzulli and Feldhusen (1971) found that fluency aspect of creativity is the only aspect which is different from intellectual ability. It was also found that performance in creative test is not related to creative ability of a person in real life. Creative students can be scientifically creative. Scientific creativity is creative thinking through media of Science. On the basis of Torrance's definition, scientific creativity may be defined as a process of becoming sensitive to problems related to Science; deficiencies, gaps, missing elements, disharmonies and so in scientific knowledge, identifying the difficulty; searching for solutions, making guesses or formulating hypotheses about deficiencies; testing and retesting of these hypotheses and finally communicating the results (Misra, 1986). Operationally, scientific creativity is a multidimensional attribute differentially distributed among people and includes chiefly the factors of fluency, flexibility, originality and inquisitiveness. Misra (1986) reported that children's exposure to different amounts of stimulations in their home and school may be responsible for sex differences in scientific creativity. Study done by Ahmed (2006) established no difference in scientific creativity of male and female students. However Gangadharrao (2012) and Hunashal (2013) found that girls have better scientific creativity as compared to boys. Gotz and Gotz (1979) discovered negative relationship between the factor of neuroticism and scientific creativity. Study done by Weiping and Philip (2002) indicated that scientific creativity of secondary school students increases with increase in age and Science ability is necessary but not a sufficient condition for scientific creativity. Singh (2009) reported positive relationship between interest in Science and fluency, flexibility and inquisitiveness aspects of scientific creativity. Sharma (2015) reported that students with high

achievement in Science had significantly higher scientific creativity than students with low achievement in Science. Sansanwal and Sharma (1993) reported significant difference in scientific creativity of male and female students. They also reported that scientific creativity of students belonging to high and low levels of self-confidence differ significantly. Misra (1986) found significant correlation between verbal intelligence and scientific creativity. However, Sansanwal and Sharma (1993) reported no difference in scientific creativity of students with high and low level of intelligence. Misra (1980) found that urban and rural students significantly differ on scientific creativity.

Through the analysis of the above studies, it becomes evident that cognitive abilities are inter-related and they affect each other. According to Tok, Bahtiyar and Karalok (2015), teaching math creatively can be effective in increasing mathematics achievement, attitudes towards math, and decreasing math anxiety. In this context, the researcher tried to investigate the relationship of achievement in mathematics with cognitive abilities like problem solving ability and scientific creativity. Thus, the problem for the present study may be stated as 'A study of problem solving ability and scientific creativity in relation to achievement in Mathematics among high school students'.

Objectives

The objectives of the study were-

1. To study the relationship between achievement in Mathematics and total scientific creativity.
2. To study the relationship between achievement in Mathematics and fluency aspect of scientific creativity.
3. To study the relationship between achievement in Mathematics and flexibility aspect of scientific creativity.
4. To study the relationship between achievement in Mathematics and originality aspect of scientific creativity.

Hypotheses

To achieve the above mentioned objectives, following hypotheses was formulated and tested-

1. There is no significant relationship between achievement in Mathematics and total scientific creativity.
2. There is no significant relationship between achievement in Mathematics and fluency aspect of scientific creativity.

3. There is no significant relationship between achievement in Mathematics and flexibility aspect of scientific creativity.
4. There is no significant relationship between achievement in Mathematics and originality aspect of scientific creativity.

Methodology

Keeping in view the nature of the problem of the present study, correlational survey method of descriptive research has been used. There are two variables in the present study –scientific creativity and achievement in Mathematic. The independent variable is achievement in Mathematics and dependent variable is scientific creativity. The sample for the study comprised of 200 (100 Male + 100 Female) high school students of Bhadohi district of U.P. Verbal Test of Scientific Creativity – VTSC developed by V. P. Sharma and J. P. Shukla was used to measure scientific creativity of students. Marks obtained by the students in Mathematics in class IX examination served as an index of achievement in Mathematics. Product moment coefficients of correlation and t-test were computed for the analysis of the data.

Results and Discussion

Table 1

Values of coefficient of correlation between achievement in Mathematics and fluency aspect of scientific creativity

Groups	N	Value of Correlation 'r'
Male	100	.129
Female	100	.208*

* Significant at . 05 level

Perusal of Table 1 reveals that the values of coefficient of correlation between achievement in Mathematics and fluency aspect of scientific creativity for female (= .208) students is significant at .05 level. Thus, the null hypothesis that 'there is no significant relationship between achievement in Mathematics and scientific creativity (fluency aspect)' can be rejected for female students. It means that achievement in Mathematics is positively related to fluency aspect of scientific creativity among female high school students. The present finding is in accordance with the findings of Sood (1999) who also found that fluency is significantly correlated with Mathematical achievement of students. Ali (1999) also reported that fluency aspect of creativity is related to achievement in Mathematics among girls.

Perusal of Table 1 also shows that the value of coefficient of correlation between achievement in Mathematics and fluency aspect of scientific creativity for male

students is not significant at .05 level. Thus, the null hypotheses for male students can be accepted. It means that achievement in Mathematics is not related to fluency aspect of scientific creativity among male high school students.

Table 2

Values of coefficient of correlation between achievement in Mathematics and flexibility aspect of scientific creativity

Groups	N	Value of Correlation 'r'
Male	100	.172
Female	100	.214*

* Significant at . 05 level

Observation of Table 2 shows that the values of coefficient of correlation between achievement in Mathematics and flexibility aspect of scientific creativity for female students is .214 which is significant at .05 level. Thus, the null hypothesis can be rejected for female students. It means that achievement in Mathematics is positively related to flexibility aspect of scientific creativity among female high school students. Table 2 further shows that the values of coefficient of correlation between achievement in Mathematics and flexibility aspect of scientific creativity for male students (= .172) is not significant at .05 level. Thus, the null hypotheses can be accepted. It can be inferred that achievement in Mathematics is not related to flexibility aspect of scientific creativity among male high school students.

Table 3

Values of coefficient of correlation between achievement in Mathematics and originality aspect of scientific creativity

Groups	N	Value of Correlation 'r'
Male	100	.010
Female	100	.108

It can be observed from Table 2 that the values of coefficient of correlation between achievement in Mathematics and originality aspect of scientific creativity are.010 and .108 for male and female students respectively. None of the values are significant at .05 level. Thus, the null hypothesis can be accepted. It means that achievement in Mathematics is not related to originality aspect of scientific creativity among male and female students.

Table 4

Values of coefficient of correlation between achievement in Mathematics and total scientific creativity

Groups	N	Value of Correlation 'r'
Male	100	.144
Female	100	.233*

* Significant at . 05 level

Table 4 shows that among female students, the value of 'r' is .233 which is significant at .05 level. Thus, the null hypothesis can be rejected for female students. It means that achievement in Mathematics is positively related to total scientific creativity among female students. Bharadwaj and Maurya (2010) also found positive relationship between achievement in Mathematics and creativity. Florence et al. (2015) reported positive relationship between scientific creativity and achievement in Chemistry. It can also be observed from the Table that the values of 'r' is not significant for male (= .144) students. Thus, it can be inferred that among male students achievement in Mathematics is not related to total scientific creativity.

On the basis of the findings of the study, it can be concluded that – Among female students, achievement in Mathematics is positively related to total scientific creativity, fluency and flexibility aspects of scientific creativity.

Educational Implications

The present study revealed positive relationship between achievement in Mathematics and total scientific creativity. It implies that through developing scientific creativity among students their achievement in Mathematics can be increased. For this teachers must bring novelty in his teaching and must also improve their methods of teaching. Teachers must make the students sensitive towards the problem.

Schools may also plan for scientific process skills education in order to increase students' achievement and scientific creativity (Aktamis & Ergin, 2008). It is the responsibility of school to develop scientific attitudes in students so that they may solve their problems independently for better adjustment in the future complex society.

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Vision of Inclusive Education: Some Reflections

Dr. Dinesh Singh*

Abstract

Inclusive education is rights-based approach to educating children and includes those who are subject to exclusionary pressure. It differs from previously held terms 'integration and mainstreams' which tended to be concerned principally with disability and special educational needs. It implied learners changing or becoming ready to accommodate by the mainstream. But inclusion is the child's right to participate and school's duty to accept. The benefits of inclusive education are numerous for both Students within or without Disabilities. It enhances skill acquisition and generalization. Learners from different background came together in a classroom to get the instructional training. Because of the diversity, the class room becomes a mixed group of exceptional, slow learners and learners with some forms of disabilities. Therefore, the prime concern in a country like India should be equal care and attention to all learners. This will be a notable advance from past practices and indicates an awareness of the important role of inclusive education in the future. But there is a need to take up the task of effective implementation of inclusive education very seriously. In this context only governmental efforts are not sufficient. It needs full participation of NGOs and other socially responsible agencies.

Aims of education expresses that the educational development of the individual is the central aim and that education should allow children to reach their full potential with respect to cognitive, emotional, social and creative capacities. A Right based approach to education is based on three aspects as per guidelines for Inclusion by UNESCO in year 2005, which are as follows-

- Access to free and compulsory education.
- Equality, inclusion and non-discrimination.
- The right to quality education content and processes.

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Inclusion is concerned with providing appropriate responses to the wide range of comprehensive needs in formal and non-formal educational settings. Inclusion is based upon the principle of normalization that is all persons regardless of ability should live and learn in environment as close to normal as possible. According to UNESCO report (1994)- "School should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. This should include disabled and gifted, street and working children, children from emote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalized areas or groups."

Inclusive education refers to the inclusion of marginalized groups such as religious, racial, linguistic, minorities, girls, poor, migrants, street children, child workers and many more that are culturally and socially disadvantaged including children with special needs. Inclusion supports the involvement of each and every member of the society and reaching his full potential.

Need of Inclusion

The world is changing rapidly, moral values are re-examined as stereo typical thinking is increasingly exposed, so inclusion is necessary. National and international guidance also advocates inclusion. Need of inclusion as follows-

- Maintaining barriers to some student's participation in cultures, curricula and communities of local schools is unacceptable.
- Valuing some people more than others is unethical.
- Thinking hat school changes made for some will not benefit others is short sighed.
- Preserving school cultures, policies and practices that are non-responsive to the diversity of learners perpetuates inequalities.
- Viewing differences between students as problems to be overcome is disrespectful and limits learning opportunities.
- Separate schooling for physically challenged learners. Violates their basic human right to education without discrimination.
- Perceiving inclusion in education as a separate issue from inclusion in society is illogical.

Basic Elements of Inclusion

1. Inclusion is a process- Inclusion is a never ending search to find better ways of responding to diversity. It is about the learning how to live with differences and learning how to learn from differences.

2. Inclusion is concerned with the identification and removal of barriers- Inclusion involves collecting and evaluation of the information fro a wide variety of sources in order to plan for improvements in policy and practices.

3. Inclusion is about the presence, participation and achievement of all students- Presence refers to the reliably and punctually of the students attended, participation refers to the quality of their experiences. These aspects should be incorporated with the views off learners. Achievement is concerned with the outcome of learning across the curriculum.

4. Particular emphasis on marginalized group- Inclusion involves a particular emphasis on these groups of learners who may be at risk of marginalization, exclusion or under achievement.

Ways of Inclusion in Education

Inclusion should increase children's learning opportunities. The quality of the setting and its appropriateness for individual students is very important. This process should involve parents, all school based personnel, support staff and the student themselves. Students have the right to a quality education and access to all aspects of school life. Inclusion in education involves the following aspects-

- Restructuring the cultures, policies and practices in schools and colleges, so that they respond to the diversity of students in the locality.
- Increasing the participation of students in and reducing their exclusion from the cultures, curriculum and communities of local schools and colleges.
- Acknowledging the right of students to an education in their locality.
- Reducing barriers to learning and participation for all students.
- Learning from attempts to overcome barriers to the access and participation of particular students.
- Improving schools and colleges for staff as well as for students.
- Enhancing mutually sustaining relationship between schools, colleges and communities.

- Emphasizing the role of schools in building community and developing values, as well as in increasing achievement.

Strategies of Quality Inclusive Education

1. Community Participation- Panchayati Raj institutions have emerged as the powerful institutions in bringing about rapid and sustainable development in rural areas. Local governance should launch literacy schemes which ensures participation of the representatives of rural population. Panchayati Raj institutions can play very vital role in the process of inclusive education which are as follows-

    - Panchayati Raj institutions can create positive attitude amongst the families of disadvantaged groups towards primary education.
    - It can try to eliminate gender discrimination at school level.
    - Encourage the parents of disabled students to send them in nearby schools.
    - Panchayati Raj institutions can insure the representation of disadvantaged groups in the management of the schools etc.

2. Technological Applications- Students with the reading difficulties are eligible for special education services supplemental academic supports such as assistive technology (eg. text to speech, speech to text, spell cheeking devices) under the Individuals with Disabilities Education Act (IDEA), Assistive technology can act as a cognitive prosthesis, which enhances students abilities to access, participate and make progress in the general education curriculum *(Bone & Higgins, 2007)*.

    'Web for all' is an innovative technology that enables students/ persons with disabilities, low literacy levels as well as people unfamiliar with computers, to use the internet. 'Web for all' is being pilot tested at public internet access sites provide people with affordable access to the internet in places such as community centres, schools, disability and literacy resource centres, drop in centres and seniors facilities *(Pange, 2009)*.

3. Inclusive Curriculum- An inclusive curriculum takes gender, cultural identity, language background etc into consideration. It addresses the child's cognitive, emotional, social and creative development. Multilingual approaches in education can act as a source of inclusion.

Technology is helpful in designing inclusive curriculum. Digital curriculum instructional designers have the means to integrate learning opportunities suited to all students within one curriculum a universally designed digital curriculum (UDDC). Video with caption, video with audio description, video with sign language are the different ways of presenting content for the students of diverse learning needs.

4. Inclusive Teacher- Teacher of an inclusive classroom must be sensitized and aware of the philosophy of inclusive education. He should have the professional skill in the areas of cooperative learning, peer tutoring, adoptive curriculum etc. He should be oriented towards the different types of adjustment that school have to make in terms of infrastructure, curriculum enhancing methods and other school practices for the learners of diverse needs.

5. Teachers Training- In teachers training programme, there is lack of experience and skills for working in inclusive settings, development of attitude and value regarding inclusive education is not given importance during training. Teacher must be taught to practices inclusion and respect disabilities.

6. Inclusive Classroom- Inclusive education requires manageable classrooms so that challenged learners receive teacher attention. So teacher student ratio should be high in inclusive classroom. Barrier free physical environment to accommodate the needs of various disabled students are necessary in inclusive school.

7. Role of NGOs- NGOs and voluntary organizations can play very vital role in creating awareness that main streaming excluded students. If parents are educated about the advantage of inclusive education which develops the virtues of empathy and compassion in students, they become a strong pressure group of the cause, collaboration among parents, teachers and administration is necessary.

8. Access to Success- There must be effort to expand enrolment and retention and it must be accompanied by policies to enhance educational quality at all levels informal and non-formal settings. Excluded students must get success in inclusive schools with programmes and practices.

9. Research- There should be a network of interdisciplinary researchers to promote dialogue and dissemination of research findings on the

challenges of addressing diverse classrooms and inclusive practices and processes in educational institutions.

Challenges to Implement Inclusive Education

Inclusive education in India, needs must contact with the present system of education, which is provided under the integrated education programme for children with mild disabilities in a regular school and the special school for the more severely disabled child under the Ministry of Social Justice and Empowerment implemented through State Governments and NGOs. Perhaps the much important is not whether inclusive education is relevant for us in India but the problems associated with its implementation. A major issue has been the lack of statistics on the prevalence of intellectual disabilities.

1. Negative Attitude towards Inclusion- Negative attitude towards inclusion is in the form of social discrimination, lake of awareness and traditional prejudice which are in no ways conducive for the education of the children. If teachers do not believe in inclusion, they can become a major barrier in progress o inclusion. In many cases, teachers lack confidence and the basic knowledge needed to welcome all children in their classroom. Inadequate, fragmented and uncoordinated training of teachers may be one of the reason behind this.

2. Physical Barriers-Physical infrastructure of schools is main barrier in the way of educational inclusion. There are walls between schools and children before they get enrolled, they face walls with curriculum in side the classrooms and finally they face more walls when they have to take examinations which determine how successful they will be in life (Jha, 2002). Most of the schools or centres of learning are physically inaccessible to special learners. Environmental barriers included doors, passageways, stairs and ramps.

3. Curriculum- Designing an inclusive curriculum is also a challenging task. Children face barriers within schools and classrooms owing to organization of curriculum and teaching methodologies also. They feel isolated within school and receive discriminatory curriculum.

4. Poverty and lack of awareness- Poverty is also a barrier for the education of differently abled children. Poverty and lack of awareness generally results in parents not assessing a large number of schemes

and entitlements that are offered for disabled children by the government.

5. Insensitive Community- Differently abled children who have entered school inspite of all the olds, the insensitive community members and school peers become detrimental to their motivation to learn. Poor or inadequate support of parents also dampens their spirit to go the school. Due to illiteracy also, parents are unable to provide any support to their children.

Overcoming the Challenges to Inclusive Education

Inclusive education should be designed with a vision and principle that believe in the culture of rights, social justice and equity. All children are not the same and acceptance of diversity as strength rather than a problem is necessary. Some of the points to overcome the challenges to inclusive education are as follows-

1. Physical Accessibility- For designing the inclusive school setup, it should be plan in advance for use by differently abled students. In inclusive school there should be wheel chairs, standing frames and ramp facility along with stairs. Assistive devices like communication board, hearing aids, adopted toys, simulation aids, Braille atlases, Braille rulers, talking calculators etc must be in inclusive classroom. Some adaptive devices like Laser Cane, Sonic Guide, Optacon, Qurzweil Reading Machine, Micro Computer, Computer Braille Translator, Computer Automation Devices are also essential for the learning of differently abled children. Toilet and taps of drinking water should be adapted according to these students. There should be proper space in the classroom for wheel chair. Ground of the classroom should not be slippery.

2. Attitudinal Changes- Promoting positive attitudes and respect for differences is a prerequisite for policy development and implication of inclusive education in school and community. Attitude is something which needs to be worked on first before implementing inclusive education.

3. Curricular Adaptations- All the educational objective can be achieved through curriculum. So for inclusive education, necessary adaptations in curriculum are essential. According to Mittler (2000)-"Inclusion implies a radical reforms in terms of curriculum, assessment, pedagogy and grouping of people." Inclusive curriculum should be

designed very carefully. The flexibility and success of an inclusive curriculum reflects in its syllabus, teaching methods, strategies and means of assessment.

4. Teaching Strategies- For inclusive classroom collaborative learning, peer tutoring, activity based learning, team approach, problem solving method, equity in assessment and examination should be adopted as teaching strategies.

5. Teacher Training and support- To work in inclusive classroom, teachers need to be re-trained in curriculum and evaluation. Development of positive attitude towards inclusive education among teachers during training is also necessary. Once teachers are in the system after retraining in skills and attitudes, they must also be supported with appropriate materials.

Conclusion

Inclusion is necessary in present scenario. For effective inclusion of excluded, teachers will have to be non-traditional, unconventional and constructive, Emphasis should be given on the development of attitude and values towards inclusive education along with knowledge and skills in teachers training programmes. Sensitizing programmes should be developed for positive attitude building and inclusive skills development among teachers to deal with students of diverse learning needs. It will definitely give positive results and promote better inclusive education from primary to higher education.

Strengthening links with the community is very vital. There must be good relationship among teachers, students, parents and society for developing inclusive learning environment. Inclusion to a large extent depends on teacher's attitudes towards differently abled students on their capacity to enhance social relations, on their view on differences in classrooms and their willingness to deal with those differences effectively.

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A Study of Ecological Literacy among Post Graduate Students of District Prayagraj

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Abstract

Ecological literacy is the skill or ability to understand the natural system which is related to our life. It is the knowledge and understanding about how the Earth functions and develops a way of thinking about the world in relation to their interactions with the natural system and about consequences of human actions. Ecological literacy provides the necessary knowledge and understanding to indicate the solutions of environmental issues in a unified way. The study aims to explore the ecological literacy among post graduate students. A self made questionnaire was used to know about the knowledge and understanding of PG students about the environment around them. The findings of the study indicated that Science stream PG students have high ecological literacy as compared to Arts stream PG students and no difference in ecological literacy was found among male and female PG students.

In the present scenario, deforestation, soil erosion, air pollution, water pollution and land degradation are our major environmental problems. In the environment, pollutants are present in the physical, chemical and biological form in our surroundings which harmed the human life and other living species. The uncontrolled activities of human started the damage of healthy environment. There can be no solution to these environmental problems unless the social and economic ills besetting mankind are seriously addressed. Time has come to ensure that the concepts of education for sustainability in the broad set sense are woven into a framework upon which the present and future educational policy will be based. The education system seems to be inadequate to educate the youth for the future in a proper way. Besides that, students also did not observe ecological relationships as their common sense. Bowers (2003) observes that ecological knowledge is not seen as important for the students. Ecological literacy emphasizes the ecological, economic and social relationship in students. It places human as integral parts of ecosystems and recognizes the impacts of relations between humans and other species. It also strengthens the care and respect for the other humans, species and

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their ecological needs for survival. Therefore it is vital that our society develops a new understanding and a new awareness of human's relation to his environment. This study explore the student's ecological literacy by the assessment of the level of knowledge and understanding of ecological systems and process.

The term 'Ecological Literacy' appears to have been first used publicly in 1986 by Paul Risser in an address to the Ecological Society of America. In 1992 Orr proposed that achievement of a sustainable human society was in extricably linked to ecological literacy and that the ecological crisis reflected a crisis in education. Ecological literacy has been defined as the ability to use ecological understanding, thinking and habits of mind for enjoying, living in nature and / or studying the environment and as focusing on the key ecological knowledge necessary for informed decision-making, acquired through scientific inquiry and system thinking. Ecological literacy refers to a student's understanding not only of ecological concepts, but also of his or her place in the ecosystem (Meena & Alison, 2009) knowing, caring, and practical competence from the basis for ecological literacy. Orr (1992) also argues that the ecologically literate person understands the dynamics of the environmental crisis, which includes understanding of how people have become so destructive. Therefore, identifying youth and students ecological literacy level is a necessary step to investigate their behaviour, attitudes, sensitivity and behavioural intention. In order to create awareness among students, it is important to foster correct knowledge to ensure positive approach to the environment (Hares, Eskonheimo, Myllytaus & Luukkanem, 2006). Previous studies examined student's environmental knowledge, attitude and activity levels and found significant variations among students, based on their gender and educational background (Tikka, Kuitunen & Tynys, 2000). Therefore, it is observed that various factors like knowledge, attitudes, gender and subject matter expertise may influence personal ecological literacy.

Objectives of the study:

The present study is undertaken keeping in view the following objectives:

- To study the difference in ecological literacy among male and female post graduate students.
- To study the difference in ecological literacy among post graduate students of science and arts streams.

Hypothesis of the study :

- There is no significant difference between male and female post graduate students regarding ecological literacy.

- There is no significant difference between post graduate students of Science and Arts stream regarding ecological literacy.

Methodology : For the present study, the sample is selected from district Prayagraj of Uttar Pradesh. The simple random sampling method was used in this study. 120 students were taken as the sample for the present study. For the present study, the researcher used the self-made questionnaire for Ecological literacy. It consists of 61 questions based on ecological knowledge and understanding which includes the components viz. knowledge of natural systems, environmental issues, pollution, population conservation and biodiversity. The items are of close ended type with 'Yes' or 'No' options. One mark awarded for the right answer and '0' for the wrong answer. t-test was used for the analysis of the dada.

Result & Discussion :

Table 1

Mean, S.D. and t-ratio showing the difference in ecological literacy of male and female post graduate students.

Group	N	Mean	S.D.	t-ratio
Male	61	43.27	5.04	0.766
Female	59	43.59	5.47	

It can be observed from the table 1 that the mean ecological literacy scores of Post graduate male and female students are 43.27 and 43.59 and S.D is 5.04 and 5.47 respectively. The value of t-ratio between two groups has been found out to be 0.766 which is not significant at 0.05 level. Thus the null hypothesis that there is no significant difference between post graduate male and female students regarding Ecological literacy is accepted. It means that there exists no difference between post graduate male and female students regarding their Ecological Literacy.

The result of the present study is in line with the study of Bhatia & Bhatia (2013) which also reveals no difference in environmental awareness between male and female postgraduate students.

Table 2

Mean, S.D. and t-ratio showing difference in ecological literacy of Arts and Science post graduate students.

Group	N	Mean	S.D.	t-ratio
Arts	63	42.99	5.58	2.362*
Science	57	43.96	4.79	

*Significant at .05 level

Table 2 shows that the mean ecological literacy scores of post graduate Arts and Science students are 42.99 and 43.96 and S.D is 5.58 and 4.79 respectively. The value of t-ratio between two groups has been found out to be 2.362 which is significant at 0.05 level. Thus, the null hypothesis that there is no significant difference between post graduate Arts and Science students regarding ecological literacy is rejected. It means that there exists a significant difference between post graduate Arts and Science students regarding their ecological literacy. Mean ecological literacy score reveals that as compared to Arts stream post graduate students, Science stream post graduate students have high ecological literacy.

In support of the findings of the present study, is the study of Kaur (2016) which revealed that the mean scores of environmental awareness of the post graduate students from Science stream is higher than the students of humanities.

The result of the study indicates that the post graduate students of science stream of district Prayagraj are more ecological literate. It implies that attempt should be made to strengthen the ecological literacy level of Arts stream students. Due attention should be given to the need of practical exposure to environment, rather than classrooms theories on Environment.

Future planning to integrate environmental education into the curriculum should consider the subject differences of the students. The findings suggest that the students should be encouraged to possess their own sense of responsibilities toward the environment. Environmental education should not be restricted to only in-class lessons. There is numerous ways by which they can learn about the environment where they live.

Conclusion

Environment and Ecology is going to have a major impact in our country. Our government has taken several steps in order to improve the awareness about environment in general public. Thus more researches should be carried out to access ecological literacy level, even among students, youth and old ones. Emphasis should be given to environmental problems of local and regional purpose. Mass media such as, Newspaper, TV, Radio, documentaries and short films etc can be used for expansion of Environmental Education among people. Various steps shall be taken to enhance the ecological literacy level among students and preparing them with a sense of responsibility to protect the environment for a better future.

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A Study of Interest in Geometry among VII Grade Students' in Relation to Gender of Students

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Abstract:

The present study investigates Interest in Geometry among VII grade students in relation to gender of students. A sample of 80 class VII students (42 boys 38 girls) belonging to CBSE English medium schools were taken for study. Students were measured on Interest Inventory developed by the researcher. Descriptive survey method was employed to find the geometry interest of the students. Percentage analysis was done to find the interest of students towards geometry. t test was used to compare Geometry interest of boys and girls. The findings of the study revealed that in total students showed high interest in geometry, and no significant difference was found in Geometry interest of boys and girls.

Introduction

Mathematics is the language in which universe was created. Education Commission (1964-66), National Policy of Education (1986), considered the importance of visual mathematics and suggested that, Mathematics should be visualized as a vehicle to train a child to think, reason, analyze and to articulate logically. National Curriculum Framework for School Education (NCFSE), 2000, treated geometry as concomitant to any subject involving analysis and reasoning. Geometry's utility and importance in Mathematics is perceived by most pupils as difficult, boring, not very practical, abstract etc. For most students, the subject is not a source of satisfaction, but rather one of frustration, discouragement and anxiety. In the field of education, it has become a burning problem and the number of low achieving students in Mathematics at the school level is constantly increasing. Inspite of the pedagogic progress and efforts of teachers of Mathematics, results in general are unsatisfactory. This may be due to the lack of interest of the students in the subject of Mathematics. Whatever one learns, interest plays a dominant role in making him learn that thing. When a student attributes

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high value to a particular subject area, then it is said that the student has interest in that area. According to Berdie (1965), the term interest refers to engage in some types of activities rather than others. 'Interest' may be regarded as a highly specific type of attitude. When we are interested in a particular phenomenon or activity, we are favorably inclined to it and give time to it. The term interest is used also to indicate a permanent mental disposition. According to Mc Dougal (1979), 'taking interest' means the bearing of a condition or subject. If a person takes 'interest' in a subject, then he would centralize himself in it despite being tired.

It is utmost need to create interest of students in Mathematics, so that different intellectual traits like power of thinking, reasoning, analysis, synthesis, discovery etc. develop in the students and there by lead the society towards a positive and constructive direction.

Different studies done so far clearly bring out the importance of interest on students' achievement. Several researchers Beena, (1998a, 1998b, 1999), Camp, (1992) have proposed that interest influences academic achievement and learning in school. Ramanathan (1963) confirmed positive correlation in interest in Mathematics and Mathematics achievement.

One of the consistent finding in the literature on 'mathematics interest' is the effect of gender. A number of studies have documented that boys are more interested in Mathematics than girls (OECD, 2004; Watt,2004). So there is a great need to study different factors which are responsible for making the students disinterested in Mathematics.

Objectives of the study:

- To analyze students interest towards geometry among VII grade .
- To study the effect of gender in interest in Geometry among VII school students

Hypothesis:

- There is no significant difference in interest in Geometry between boys and girls of VII grade.

Methodology: Descriptive survey method was used to examine interest in geometry among VII grade students. A sample of 80 students (42 boys 38 girls) belonging to CBSE English medium schools were taken for study. A self-prepared Geometry Interest Inventory was used as a tool for the study. There are 40 items in the inventory, 20 items indicates liking and 20 indicate disliking towards geometry. There is no right and wrong answer. Percentage analysis and t test were employed for the analysis of the data.

Results and Discussions:

Table 1

Percentage of students on interest in geometry

Level of Interest in geometry	**PERCENTAGE**
Low	7.5 %
Below Average	11.25%
Average	18.75 %
Above Average	20 %
High	37.5 %

Table 1 shows percentage of students with different levels of interest in Geometry and it is evident that 7.5% showed low interest. 11.25 % showed average interest. 37.5% showed high interest in geometry.

Table 2

Mean, S. D. and t-ratio showing the difference in interest in Geometry of boys and girls.

Groups	Mean	S.D.	t-ratio
Boys	33.27	6.58	0.884
Girls	32.20	6.64	

Table 2 shows the mean of boys as 33.27 and that of girls as 32.20 and having SD as 6.58 and 6.64 for boys and girls respectively. The t-ratio is found to be 0.884 which is not significant at 0.05 level of significance. Thus null hypothesis can be accepted and it indicates that boys and girls do not differ on interest in geometry scores. It may be due to the reason that different strategies and techniques are applied in the teaching –learning process of Geometry in mathematics keeping in view the individual pace of students and their level of learning. The curriculum planner had taken initiative to plan the curriculum in such a way so as to make both boys and girls interested in learning of the subject. Girls are showing equal visual and abstract conception in comparison to boys due to curiosity and individualized learning opportunities (Lutkus,2005).The findings also suggests that perception regarding girls Mathematics performance are not dependent on rote learning and they are no more marginalised and not given subordinate status in mathematics classroom.

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Relevance of MOOCs Program for Ensuring Social Inclusion and Quality Learning

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Abstract

MOOCs are providing access to quality learning all over the world and also help learners to learn flexibility. This research paper aimed to examine the relevance of MOOCs programs in the context of quality leaning and social inclusion; to analyze the present status of MOOCs programs in India, to what context MOOCs programs is ensuring the quality of education and to analyze the context to which MOOCs programs is being use by different cross section of learners. The basic research design of this research paper is descriptive survey. The study is based on secondary data from the SWAYAM portal and MHRD LOK SABHA press bureau. Researcher conclude in this study that MOOCs are equally available to the learners of different disciplines and learners of different cross sections can easily access these courses. It can be concluded that the MOOCs programs are ensuring the social inclusion but not ensuring the quality of learning.

Introduction

Massive Open Online Courses (MOOCs) is the way of distance learning with the use of effective ICT. MOOCs are aimed at unlimited participation. MOOCs are now very popular distance learning method for all over the world. The first experiment of MOOCs related program has been done by the Dave Cornier in 2008 at the University of Prince Edward Island. MOOCs are generally open to all type of learners whether they are from the urban areas or rural areas and any type of backgrounds. It is necessary for MOOCs to have a decent internet connection and computer system to a learner. Most of the MOOCs are free and open to anyone. These courses are a series of prerecorded or live lectures for particular subjects. These courses are provided by a platform in which it is possible to browse several courses for learners and tutors. These video lectures are followed by short quizzes or assignment for evaluating the learner's knowledge in their courses. MOOCs organize examination and give the certificate to learners which is valuable as the regular school certificate according to UGC Credit Framework Regulation 2016. At present time, MOOCs are very important for the

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professionals, working persons and also for the homemakers. Coursera, edx, Udacity and Future Learn are the some international MOOCs providers. India has also taken initiative for ICT based distance learning. In 2012, IIT Delhi started providing MOOCs for learners. After this beginning many institute started providing MOOCs like IIT Kanpur developed a platform mooKIT in 2014, in the same year NPTEL starts providing online courses by the Google's open source edx. These institutes were providing the online courses individually but in 2016 MHRD started an integrated MOOCs platform SWAYAM. Study Webs of Active Learning for Young Aspiring Minds (SWAYAM) is an online learning platform to cover all the higher education subjects for ensuring the access to the best quality education at affordable cost. Basically these courses are free for the self learning but if any student want to take certificate of related courses then he has to pay partial fees. At the SWAYAM platform MOOCs courses are available for ninth class to post graduation courses. These courses are provided by their related institute. 9 National Coordinators are appointed for these courses, they are NIOS and NCERT for school education, IGNOU for out school education, NPTE, AICTE, CEC, IIMB, NITTTR for under graduation education, NPTEL , AICTE, IIMB, and UGC for post graduation education. These coordinators provide courses in all possible discipline with the help of 1000 subject experts of the county. List of their related disciplines is below in the table :

SWAYAM program is designed to achieve the three main principle of today's education policy ; easy access to education, to provide quality learning and create the equality among all the learners. All the National coordinators of SWAYAM are trying to provide the need based learning material for learners and trying to reduce the education related barriers. Basically it wanted to do the democratization of our education where the education is easily affordable to the disadvantaged and socially deprived group as well as the women. So by applying this type of initiative in education government want to ensure the quality of learning and social inclusion of deprived.

Rationale of the study

MOOCs courses are free with, no restriction for learners and creates the flexibility of learning. If someone wants to study individually and by self pace the also they can concern the MOOCs. These open courses bring the new opportunities for innovative learning and its allows the institution to explore new online learning model and innovative practices in teaching learning. There is need of concern because these courses are creating wider benefits to education.

It is assumed that MOOCs program is not good enough for the learners because students are getting enroll in these courses but they are not completing the whole course. Ebben and Murphy (2014) reviews a research which suggest that the completion rate in MOOCs are less than 10%. If we talk about the accessibility of

education by MOOCs then we observe that MOOCs production is limited to the "Elite Universities". In contrast of traditional education tens of the thousands learners can get the access to a single MOOCs offered by an Elite University(Jorden 2014, Lewin 2012). In spite of these issues, MOOCs become the latest trend in the field of distance learning which indicates a significant need of research to reduce the threat related to MOOCs.

MOOCs have the potential to enable free University level education on an enormous scale. A concern about MOOCs is also important because on one hand while millions of student are being enrolled in MOOCs, on the other hand there is a large dropouts of students from MOOCs programs. According to Bali and Carver et al. (2014), educational innovation in MOOCs making higher education more accessible to massive audience on a global scale, has gained increasing attention in higher education during the past decades.

The Porto Declaration on European MOOCs (2014) highlights the aspects of providing "opportunity to all" which can only be achieved if MOOCs are accessible to all. Bonk et al. (2015) have identified the following concerns for MOOCs in developing countries ; quality training of online educators, models of MOOCs design and implementation, high attrition , inadequate motivation, assessment strategies, teaching practices. Bezerra and Silva (2016) conducted a research to identify and analysis the main problems related with design and management of MOOCs and found six relevant issues with the MOOCs i.e. very low completion rate, the certification of the courses, the process involving the assurance and improvement of MOOCs quality, the pedagogical model, the acceptance of the certification in additional to the concern with validation and plagiarism. According to Hew and Watson et al. (2015), higher education instructor considers MOOCs an opportunity to reach more people from diverse background. So, to analyze how MOOCs are beneficial to social inclusion and quality learning, the need arises to conduct the present study.

Research questions

The present paper is an attempt to find appropriate and reliable answers of following research questions :

1. Whether the MOOCs program is equally accessible to learners of different disciplines ?
2. Whether the MOOCs program is ensuring the quality of education ?
3. Whether the MOOCs program is being used by different cross section of learners ?

Objectives of the study :

1. To analyze the present status of MOOCs program in India.

2. To analyse the context to which MOOCs program is ensuring the quality of Education.
3. To analyze the context to which MOOCs program is being use by different cross section of learners.

Method of the study

In the present study, descriptive survey method was used. The study is based on secondary source of data. The data is collected from the official website of SWAYAM portal, and Press Information Bureau Govt. of India MHRD and LOK SABHA.

Analysis and interpretation

Research Question 1. Whether the MOOCS is equally accessible to learners of different discipline.

Table 1

Available courses for different disciplines in session 2019-20

S.N.	Name of NC	Name of Provided discipline	Number of courses		
			Upcoming	ongoing	Total
1.	AICTE	Self- paced and international courses	08	48	56(5.32%)
2.	NPTEL	Engineering	386	253	639(60.74%)
3.	UGC	Non-technical post graduation education	00	43	43(4.09%)
4.	CEC	Non-technical under graduation	70	91	161(15.30%)
5.	NCERT and NIOS	School education	69	01`	70(6.65%)
6.	IGNOU	Out of school education	16	14	30(2.85%)
7.	IIMB	Management studies	25	22	47(4.47%)
8.	NITTTR	Teaching training program	06	00	06 (0.57%)
			Total courses		1052

According to table 1, the majority of the provided MOOCs on SWAYAM platform are engineering courses. 60.74% courses are available for engineering courses. Non-technical and post graduation courses are 15.30%, school education courses are 6.65%, self-paced and international courses are 5.32%, management courses 4.47%, non-technical graduation courses are 4.09%, out of school education courses 2.85% and teachers training program are 0.57%. So, the above analysis reveals that MOOCs program are not equally accessible to the learners of different disciplines.

Research Question 2. Whether the MOOCs program is ensuring the quality of education ?

Researcher has analyzed the quality of given MOOCs on the basis of student enrollment, exam registration, successful certification and the financial investment on SWAYAM platform by the Indian government.

Table 2

Students enrolled in MOOCs and successful certification

S.N.	National Coordinator	Enrolled Students	Exam Registration	Successful Certification
1.	AICTE	120141	16(0.0133%)	00 (00%)
2.	NPTEL	8163683	881514(10.80%)	513825(6.29%)
3.	UGC	164997	4965(3.01%)	1853 (1.12%)
4.	CEC	263560	5221(1.98%)	1624 (0.62%)
5	NCERT and NIOS	3022805	00 (00%)	00(00%)
6	IGNOU	47529	483 (1.02%)	00(00%)
7	IIMB	74627	1121(1.50%)	206(0.27%)
8	NITTTR	66179	1377(2.08%)	00(00%)

According table 2 there is a high dropout rate in the number of enrolled student and successful certification in the courses. On AICTE platform course certification in 0%, Successful certification of distance learning on IGNOU platform is 0%,successful certification of school education courses is 0%,successful certification of teacher training courses is 0%, successful certification in management courses is0.27%, successful certification in under graduation courses is 0.62%, successful certification for post graduation courses is 1.12% and successful certification in engineering is 6.29%. so there is a high dropout rate in MOOCs on SWAYAM platform.

Table 3

Amount of money spent on SWAYAM by Indian Govt.(Rs. in crore)

Name of scheme	2015-16	2016-17	2017-18	2018-19
SWAYAM	52.00	61.00	63.07	44.97

Table 3 shows that government expenditure on this platform is decreasing. In first 3 year government expenditure was increasing but in the last year expenditure has decreased. So according to the analysis of investment it reveals that the quality of MOOCs is getting down because Indian government is also taking back foot from this initiative.

Table 2 and table 3 data shows that quality of MOOCs is not good enough for the learners because learners are not attending whole lecture series and also not giving the certification exam on the same rate which is for the course enrollment.

Research Questions 3. Whether the MOOCs program is being used by the different cross sections of the learners ?

Basically there are no boundaries for learners on SWAYAM platform. MHRD has given the data of different learners who are enrolled on SWAYAM platform. The data is given in the table 4.

Table 4

Data of registered learners and course offered in recent year

YEAR	2018-19	2019-20
Number of courses	1082	1052
Registered students	25,57,118	11,923,521

According to the data given in the table 4, for session 2018-19 the number of registered learners including students, teachers, professionals, senior citizen, housewives etc. in various courses on SWAYAM platform are 25,57,118. and the number of registered learners on SWAYAM in the year 2019-20 is 11,923,521.

So on the basis of above data it can be said that the MOOCs are being used by the learners of all cross sections.

Conclusion and Discussion

Thus, on the basis of the present study it can be concluded that the MOOCs are accessible to all the cross sections of learners. By providing the easy access to education MOOCs program is ensuring the social inclusion. But analyses of the

quality of MOOCs suggests that it is a need of great concern because students are not completing the lecture series of the course in which they are enrolled. They leave the course without taking certification of related courses. So the major findings of the present study are :

- MOOCs program are not equally available for the different disciplines. Because 60.74 % courses are available for the engineering and rest of minor percentage is covered by the other learning discipline.
- MOOCs programs are not ensuring the quality of learning because there are large dropout of the enrolled students from there courses and government of India is also decreasing the investment amount for this initiative. In 2015-16 government has invested 52 crore but in the last year this investment amount was 44.97 crore.If we talk about the quality of the course then we see that the maximum successful certification is 6.29 % in the engineering courses. So according to this analysis we can say that MOOCs are not ensuring the quality of learning.
- MOOCs programs are being used by the different cross section of the learners because there were 25,57,118 learners in the last year and in the current year the number of learners has increased to 11,923,521.

MOOCs program are ensuring the social inclusion but it is quite unsuccessful for ensuring the quality of learning. So it's is great concern for educational authorities to improve the quality of these courses because it will ensure the qualifications of our citizens and will give vast opportunity to take quality education. Although these courses are best for the self learning and also for blended learning. It can reduce the physical, financial and social boundaries of the education.

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A Study on Learning for Sustainable Development: A Qualitative Approach

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Abstract

Government, International organizations, NGOs, educational institutions and schools are now engaged in various initiatives and campaigns to promote Education for Sustainable Development (ESD) around the world. Along with other stakeholders, higher education institutions across the world are also involved in making contributions towards improvement of sustainability in general and aim at increasing awareness and knowledge of students about social, environmental and economic issues and their complexity. Promoting the ESD at higher level is a difficult and complex task. There is no common vision on how the ESD should be integrated into the higher secondary level. While some institutions believe that there should be separate courses/programs on sustainable development focusing mainly on the interactions between human activities and the environment, and their implications for sustainable human development, others support usage of integrated inter-disciplinary perspective throughout the whole education. So, the present study made an effort to explore how the elements of sustainable development can be incorporated into higher education through exploring students' perception of their learning experience about sustainable development.

Introduction

UNESCO (2009) has defined Higher Education Institutions as a potential driving force of change towards sustainability. In this way, the great challenge of the 21st century for institutions of higher education is to train future professional students capable of acting in favor of sustainable development (Junyent, 2007). In 2002 the World Summit on Sustainable development has adopted the Johannesburg Declaration on Sustainable Development aiming to focus on "the worldwide conditions that pose severe threats to the sustainable development of our people" (UN, 2002). The importance of the central role of education in helping societies, worldwide, to achieve sustainability has also been emphasized at the summit.

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Three Dimensions of Sustainability : Sustainability has raised many discussions around its different aspects and a lot of research has been conducted on this subject. Still it remains a rather complex concept, which aims to combine aspects of both nature and human development into one general idea (Raskin, 2008). In general, it is considered that sustainable development is comprised of three intrinsically linked pillars: economic development, social development, and environmental development. In economical terms, sustainability means providing economic welfare to the present and future generations and at the same time managing the economic systems in such a way that resources are used effectively with consideration for future generations (UN, Johannesburg Declaration on Sustainable development). Sustainability from the social perspective means achieving social fairness through a just and equitable resource allocation and provision of social services to all members of the society now and in the future. An environmentally sustainable system is characterized by rational use of natural resources and protection of the environment for future generations through conservation of biodiversity, preserving atmospheric balance, productivity of soil and other systems of natural environment.

The Balance between Sustainability Dimensions : The concept of sustainability has been interpreted and understood differently by the scholars and researchers all over the world. There is a general agreement about three pillars of sustainability, but the way how they are used to describe the concept and the role each of these dimensions play are presented and treated differently in different studies and researches. These different perspectives include: economists perspective, non-environmental degradation perspective, integrational (encompassing environmental, social and economic aspects), inter-generational and holistic perspective (Lozano, 2008).

Education for Sustainable Development

—Education for Sustainable Development is a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability and is concerned with all levels and types of education. Education for sustainable development supports five fundamental types of learning to provide quality education and foster sustainable human development –learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society (UNESCO, 2009). In the guidelines document it is also emphasized that ESD must be comprehensive and should cover key issues on sustainable development, i.e. poverty reduction, sustainable livelihoods, climate change, gender equality, corporate social responsibility, protection of indigenous cultures,

etc. It should also contribute to achievement of Millennium Development Goals and Education for All goals.

Despite the existence of a big variety of definitions of Education for Sustainable Development, some of its common and core principles have been formulated and described as:

- process that integrates values and perceptions about sustainability not only into education, but into people's everyday life;
- a mean for providing people with skills and knowledge to address global societal challenges now and in the future;
- a holistic approach to attain economic and social justice ;
- a mean to improve the quality of education, reform existing education curricula build on sustainability principles and values, raise awareness of the concept of Sustainable Development.

Challenges to Education for Sustainable Development (ESD) : McKeown (2002) has identified twelve main impediments for reaching sustainability:

- low awareness of the public and education community about the essential role of education in achieving sustainability and critical linkages between education and sustainable development;
- introducing ESD into the curricula, including developing an ESD strategy and deciding on whether to teach *about* sustainable development or to change the goals and methods of education to *achieve* sustainable development;
- making the link between the educational reform to include ESD into the curriculum and the long-term economic well-being;
- understanding the complexity of the sustainable development concept;
- developing locally relevant and culturally appropriate ESD programs with public participation;
- introducing ESD elements using a transdisciplinary approach;
- the responsibility should be shared between all sectors of the government and cover both formal and nonformal sectors of education;

- reorienting teacher education to include ESD, creating knowledgeable leadership;
- acking financial resources for reorienting education to address sustainability;
- need for developing a policy on a government level; understanding that both "top up" and "bottom down" efforts in order to implement educational reforms;
- nurturing appropriate climate for accomplishing new educational and sustainability goals;
- threading principles of sustainable development into people's daily life and governmental policy.

Purpose of the study –

The purpose of present study is to explore how sustainable development issues are incorporated into the higher education institutions formally and informally along with exploring students' views towards attention required steps to handle the issue of education for sustainability in more comfortable manner.

Research Questions –

Understanding how the students not yet exposed to the higher education institution practice of sustainability perceive this concept. Furthermore, are there gaps where information needs to be shared or misconceptions mitigated to help move the university forward on its vision of sustainability? Although the main focus of this research was on qualitatively reported perceptions and definitions, quantitative information was collected on student opinions toward sustainability and its practice within the university. In order to analyze the way how SD concepts are incorporated into the higher education institution to make students able to understand and value them, the following research questions were formulated:

1. What levels of connection do students have with sustainability?
    a. Connection types included level of familiarity, awareness, knowledge, interest and importance
    b. Other questions addressed personal importance of learning, importance as a university issue, interest in environmental issues, and consideration of sustainability in day-to-day choices

2. In what ways have the concepts of sustainable development been incorporated in higher education teaching-learning environment?
3. What projects and impacts are students most interested in for campus sustainability?

Methodology

Hundred students of RIE, Bhopal enrolled in 4 years integrated course have been selected purposively to conduct the present research. Open ended questionnaire was used to get their perception of learning about Sustainable Development. Content analysis approach has been used to analyse the open ended responses in the present study.

Result and Discussion: Students were asked to respond the following four open ended questions:

1. What do you understand by the term 'Sustainable Development'?
2. Does your college involve you in any activity that contribute to Sustainable Development?
3. Do you make any effort that contribute to Sustainable Development?
4. Can you give some suggestions to your college administration to make students more aware about Sustainable Development as well as enhancing students' contribution in Sustainable Development?

In the response of first question students define Sustainable Development (SD) as a concept that is connected mainly with environmental issues while failing to acknowledge the equal importance of the social and economic aspect in SD. A large percentage of participants (70%) included the environment in their description of SD. On the other hand 15% participants included the social aspect and 5% included the economical aspect in their description of SD, only 10% participants responded *Environmental, Social, and Economic Factors with respect to their understanding of SD.* To identify the definitions (N=100) based on the three components of sustainability, researcher gave each response an overall code to indicate whether it mentioned environmental, societal, and/or economic factors.

In response of second question majority of students (91%) responded the contribution of college in making them aware through creative(like art and drama), social and practical activities(like discussion and games) in college whereas 5% responded previous academic institution 4% responded that mass media helps them in understanding the values of sustainable development.

In response of second question majority of students (96%) responded that plantation, working with community programme, awareness rally and cleanliness program in which college involves the students for giving their contribution for sustainable development on the other hand 4% responded that they are not provided any opportunity to contribute for sustainable development

In response of third question majority of students (96%) responded that they avoid the wasting of natural resources, follow public transport but 4% students responded that they are not able to contribute for sustainable development.

In response of fourth question majority of students(95%) responded that collaborative project involving students and expert, awareness campaign, inviting guest speakers, innovative initiatives must be considered to create better understanding of sustainable development whereas 5% not responded on this question.

Students response on their learning experience about ESD (Education for Sustainable Development) covered two aspects first that provided the students an opportunity to learn about ESD and the second aspect that was ignored while providing formally and informally learning about sustainable development. Students perceived learning about ESD as experienced activities are physical activities, problem solving with peers and discussions with other students. Social and practical activities such as discussions and games were also perceived by the students. On the other side students responded about some aspects that are need of the hour but were not included in the opportunity for learning about ESD like initiatives for innovations are not motivated as well as lack of opportunity to get detailed updating about emerging issues of sustainable development etc.

A majority of participants alluded to sustainability in terms of environmental components. Most included reference to usage (e.g. maintain, conserve, improve) of resources and recognized a temporal aspect to that usage. However, complexity within individual responses was limited, with a focus on human needs as the most common element. Perceived importance levels of sustainability were moderately high, whereas knowledge and interest levels were moderately low. Students emphasized to take further improving steps like innovative projects, opportunity to get details understanding of sustainable development with importance on saving energy, developing renewable energy sources, and considering impacts on natural systems. Interest in personal education and development of green courses and sustainability initiatives was quite low.

Conclusion

Understanding of college students' perceptions of sustainability is significant in the present scenario because they will shortly become the generation who is responsible for driving the economy and maintaining a sustainable society. The findings of this study support the growing awareness of the importance of sustainable behavior among today's students' socially responsible behavior, provide a benchmark against which to measure the impact of future changes to sustainability education and foster sustainable behaviors over time among the public. Awareness, interest, and knowledge levels regarding sustainability within the sample population were quite low. These are the areas where the university could focus efforts to further incorporate sustainability into the norms of campus. Examples of options include providing more exposure for sustainability projects on campus, increasing course offerings that contain sustainability components and developing engaging and exciting sustainability initiatives for students. Understanding appeared to contain high levels of anthropogenic elements. A high level of respondents focused on providing for human needs now and in the future, as well as maintaining lifestyles and protecting the environment as a way to ensure those lifestyles. Environmental elements were considered as well, but may have been linked closer to human needs than to protecting the environment. Other factors, including economic, political, social justice, or cultural, were limited within the dataset. In this case, the university may need to take specific action to expand its portrayal of sustainability to include components outside of the humanistic. In the context of a university, it behoves administrators and faculty to be aware of student perceptions and understandings of sustainability to beat the challenges to maintain the sustainable development in consistent manner.

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Theory and its Relationship with Practice

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Abstract

Whatever subtle nuances of meaning it may have for educational theories, for educational practitioners, theory is something to be regarded with suspicious and mistrust. Theory is opposed to practice and that very opposition is usually enough to arouse expectations of irrelevant jargon which has nothing to do with every day practical problem and concerns."Educational theories have made strenuous efforts to overcome this kind of antagonism, but they are making little progress. Problem of theory and practice in teacher education is matter of great concern. Studies show that theories rarely affect the behavior of the teacher. In professional courses theory and practice both plays an important role. Present paper is an attempt to find the relationship between theory and practice in teacher education.

Nature of theory and practice

Simply, theory refers to a particular kind of explanation. A theory is an organized body of concepts and principles intended to explain a particular phenomenon. Theories provide predictions and explanations as well as guidelines for actions and behavior. Theories might provide a structured thought through which the world can be observed, studied or analyzed. Theories also provide a safeguard against unscientific approaches to a problem, an issue or a theme.

According to McMillan and Schumacher (2001), a theory can develop scientific knowledge congruent with the following criteria:

- provide simple explanation about the observed relations regarding their relation to a phenomenon;
- be consistent with an already founded body of knowledge and the observed relations;
- provide a device for verification and revision; and
- stimulate further research in areas which need investigation.

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For a systematic concepts to be called a theory, the system has to be unchanged over a long time, the components of the system have to be linked in a comprehensive and non-contradictory way, and consistent in the sense that it should not be possible to arrive at contradictory claims by means of the types of derivation permitted in the theory. According to some theorists, theories must be testable but there are a number of theories belonging to the humanities or the social sciences /education are transcendental in this sense. Like as natural science, social or educational sciences are required to hold the same features in terms of their theories, it becomes evident that the theories of social sciences have more competing in nature. According to Anfara and Mertz (2006) "The major characteristic of social sciences in contrast to natural sciences is its multiple theoretical orientations which never reaches a fixed consensus like the empirical referents or explanatory schemes which characterize natural sciences. The theories available in social sciences are commonly popular because the nature of the phenomenon that is being studied allows its consideration through multiple perspectives and thus each of these perspectives suggests a reasonable explanation of the phenomenon."

The logical character of the scientific theory can be measured even if not definitively and conclusively. Some theorists crucially differentiate scientific theory from metaphysical theory. Moore has discussed the distinction between scientific and practical theorizing; and in this discussion he has argued that educational theory is a type of practical theory.

There are two types of theory in education. The first kind of theory is a structural-functionalist or explanatory theory and provides an explanation of the relationship between education and the society. This is theorizing about education: attempting to provide some explanation of education in terms of a rather more general theory; in this case. Nothing follows for practice directly from such theorizing; the purpose of such theorizing is explanation. Second type of theory is practical theory in which an outline of procedure is directed. Practical theory plays role in improving the practice. Theory of the teaching of certain kinds of skills is best promoted by certain practical theory. A theory of this kind does not attempt to explain, but outlines procedures by which certain aims are to be achieved.

First kind of theory attempts to explain practice in terms of a sociological theory. We cannot therefore expect such a theory to be of direct value in terms of improving practice. The second kind of theory on the other hand, stands in terms of its value in improving practice. A theory whose purpose is explanatory is criticized on the grounds that it fails to give guidance for practice. But this criticism fails because it mistakes the logical character of the theory.

Practices are activities directed to some end, our understanding of that end, which is theoretical rather than practical, is important as a regulator of our practices. A teacher teaching a child to read must have some notion of what is involved in reading. This is a simple illustration but the skills of reading are not simple, and a full understanding of what is involved in reading may greatly enrich the practice of the teacher.

Relationship of theory and practice in context of different approaches

The diverse range of approaches to educational theory that has emerged during the last hundred years is not only the product of an ongoing philosophical debate about the kind of theory appropriate for education to adopt but also the product of an ongoing political debate about educational policy and practice. In order to make connection between interpretation of educational theory and interpretations of educational practice more explicit and visible, here is the summary of major form of educational theorizing which emerged in the 20thcentury.

The Common Sense Approach

This approach is favored by many members of teaching profession. It refers to those approaches in which educational theory is based on a common sense understanding of 'practice'. Thus, according to this approach, educational theory is always 'practice focused'. Educational theory is simply a matter of codifying ideas, concepts and principals embedded in practice and then using this theory to test practical competence and identify deficiencies in practical performance. According to this theory, practice determines theory rather than theory determining practice. According to this view, educational practice is simply a matter of action within given tradition.

The Philosophical Approach

In this approach 'common sense' is regarded as too unreflective and uncritical to provide an adequate basis for educational theory. It therefore offers a form of theorizing designed to enable practitioners to extend and enrich their common sense thinking by relating it to a philosophical understanding of the true meaning and purpose of education. Educational practice, therefore, is not interpreted simply as a form of common-sense action but as a form of reflective practice based on educational ideas which can be articulated and justified in the light of some coherent 'philosophy'.

The 'Applied Science' Approach

This approach is adopted by those educational psychologists, educational researchers, curriculum evaluator who insist that any defensible view of

educational theory must conform to standards laid down by science. According to this view, educational theory is a form of 'applied science', using value free empirical knowledge as bases of resolving educational problem and improving educational practice. The only genuine scientific question that educational theory can resolve is practical question about the most effective means of achieving those educational aims which are desirable. The applied science approach always interprets educational practice as a technical activity for bringing about some 'given' educational goals.

The Practical Approach

According to this approach, the aim of educational theory is not only to provide solution to technical problem but also to help practitioner to make morally defensible judgments. It seeks to do this by rehabilitating the practical art of 'deliberation' as a basis for acting in particular practical situation. Thus, from this perspective, educational practice is morally informed action and it is an essentially ethical activity by educational values rather than any narrow utilitarian concern. 'practice' is thus not considered as an instrumental means to some fixed educational aims but as a flexible activity in which the choice of both means and ends is guided by values in the educational process itself.

Conclusion

Today, in education, there are several views of theory and practice competing with one another between theorist, researchers, policy makers and teachers. In most of the views, theories show interdependent relationship to practice, although the character of this relationship will, in part, rest upon the logical status of the theory that theories play an enormous role in the creation and modification of educational practices. Political, social, and economical theories influence educational systems, and their relationships with the state, and the society of which they are a part and at the classroom level. Pedagogical practices have been influenced by psychological and sociological theories. In some views, educational practice is an instrumental activity which can produce solution to many problems.

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Impact of Trauma on Learning and School Performance

Dr.Kaneez Mehdi Zaidi*

Abstract

The world in which our children are growing -where a vast majority of them are exposed to some form of violence in family, in community, in neighborhood where a child can witness violence just by switching on the television, logging on the internet, it cannot be ignored that our culture of violence affects every child in one way or the other either directly or indirectly. Violence leads to emotionally painful traumatic influences which can cause lasting mental, emotional and psychological effects. Children exposed to such traumatic events face serious learning and behavioral problems .Major areas in which problems are witnessed are related to attentiveness, problem solving, comprehension, sequential organization, cause and effect relationship, linguistic, communication, and others. Such children require trauma sensitive approach to studies, one that maximizes the student's sense of safety and acceptance. A trauma sensitive school environment can benefit all children -not only those who are traumatized but also those impacted by their traumatized classmates. This paper is an attempt to study the impact of trauma on learning and school performance and thereby to reflect on the institutional improvement and reforms in the direction of trauma sensitized education.

The world in which our children are growing -where a vast majority of them are exposed to some form of violence in family, in community, in neighborhood where a child can witness violence just by switching on the television, logging on the internet, it cannot be ignored that our culture of violence affects every child in one way or the other either directly or indirectly.

"Everyday, children enter their classroom bringing backpacks, pencil & paper - and their unique views of the world. "

The opening line of the report 'Helping Traumatized Children Learn (2005)' Massachusetts, clearly exemplify that children come to school carrying not only the study material but also their previous experiences accompany the child to school. Children are continually developing and life experiences influence their

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development both in positive and negative way. Children's unique view of the world is formed from their interpretations of the relationship and experiences at home and society. If a child is from a healthy background his development is healthier he is well adjusted with the society and has positive outlook towards the life on the other hand children who experience violence in home and society are not so well adjusted and face difficulty in accepting others. A vast majority of children experience some form of distress, crime or abuse in their earlier life with some experiencing multiple traumas. Often they do not have the necessary coping skills to manage the complications of the event. Violence leads to emotionally painful traumatic influences which can cause lasting mental, emotional and psychological effects. It not only influence their personality and behavior but also handicaps them from the very foundations for learning. Traumatic experience in childhood can diminish their concentration, cognition and communication power - abilities children need to succeed in school.

Such children require trauma informed approach to studies, one that maximizes the students' sense of safety and acceptance. A trauma sensitive school environment can benefit all children -not only those who are traumatized but also those impacted by their traumatized classmates. This paper is an attempt to study the impact of trauma on learning and school performance and thereby to reflect on the institutional improvement and reforms in the direction of trauma informed education.

Trauma in School Children

Traumatic experiences in early life -such as abuse, neglect, exposure to violence can profoundly impact and limit brain development resulting in cognitive losses, physical and emotional delays all of which undermine learning. Such experiences have the potential to interfere with children's learning, school engagement and academic success. Symptoms and impact of trauma in children are easily identifiable as it is manifested in their behavior and responses. Educators who are unaware of child's traumatic history or its importance may aggravate the situation by holding unrealistic expectations or misinterpreting the symptoms as indicators of bad conduct or misbehavior. Such symptoms and consequences of traumatic experiences in school children are enumerated here-

- aggressive responses/angry outburst
- difficulty identifying and verbalizing experiences
- focusing ,attending and recalling difficulties
- feeling of vulnerability and powerlessness
- more often suspended and expelled from schools

- withdrawal from activities
- impulsivity /hyperactivity/hyper vigilance
- absenteeism
- emotional numbing
- short term memory suffer
- self harm
- learning difficulties
- likely to fail a grade
- score lower on test

Impact of Trauma on Learning

Learning is an essential element of children's growth & development. Consistent and continuous learning in home, school and community helps children to grow into a responsible and informed adult. Trauma resulting from overwhelming experiences has the power to disturb a student's development of foundation for learning. Learning to read, write, take part in a discussion and solve mathematical problem rest on many underlying foundations like organization, comprehension and ability to produce etc. Major areas in which problems are witnessed are related to factors mentioned below-

- Organization of learning material
- Cause and effect relationship
- Attentiveness
- Inability to process information in a systematic and logical manner
- Tendency to over generalize and see things in good and bad term
- Engaging in curriculum
- Regulating emotions

Impact of Trauma and Educational Interventions

Learning about the impacts of trauma can help educators from misunderstanding the reasons underlying some children's difficulties with learning, behavior and relationship. Trauma is particularly challenging for educators **to** address because children often don't express the distress they feel. They are mentally, emotionally and psychologically affected and behave inappropriately or segregate themselves from society which further exaggerates the situation. To deal with traumatized children educators need to change the methods of interacting which requires a commitment towards shaping school culture, practices and policies to be sensitive to the needs of the learner. A trauma informed approach of educator can help them

to realize the impact of trauma, recognize signs and symptoms and resist re-traumatization. Here are some of the academic and non-academic measures which need to be taken at institutional level to assist traumatized children.

1. Academic Measures

Academic measures of trauma sensitive approach are concerned with the formal system of education. Such measures are related to the infrastructure, institutional policies which influence the teaching learning process. Following are the measures which can assist a traumatized child in coping with their academics along with their mental and emotional challenges-

- **Supportive Environment**
  - The institution should ensure a safe and supportive environment in which children can focus on learning and academic performance
  - Helping children to verbalize feeling rather than engage in inappropriate behavior
  - Be sensitive to the cues in the environment that may cause reaction in the traumatized children
  - Increase the level of support and encouragement given to traumatized children
  - Provide children with routine ,structure and repeated positive experiences to make them feel safe and free

- **Re-evaluate Discipline Policies**
  - Strict discipline may intensify the emotions of traumatic child
  - Follow inappropriate behaviour with natural consequences
  - Understanding misbehaving as attention seeking behaviour
  - setting limits instead of punishing
  - Provide help not warning
  - Accommodate child's need

- **Physical and Emotional Safety**
  - Provide appropriate physical touch when a child seeks it .It can help them to calm down and regulates their emotions.
  - Designate time and space to students to talk.
  - Monitor the children activities , to keep them ensured of bullying and teasing
  - Be aware of the non-verbal cues including body language ,voice modulation and emotional state

- **Opportunities for Emotional Regulation**
  - Children with traumatic history have difficulty in regulating their mood. Integrate emotional literacy activities to manage identify and manage feelings.
  - Discuss calming strategies to manage stressful situation
  - Don't let children's emotion escalate your own ,remain in control of your emotions

- **Flexible Teaching Methods**
  - Use short ,clear and sequenced instruction,
  - Consistent repetition of instruction during the task,
  - Use multiple strategies to communicate information ,
  - Supplement with examples of meaning making, concept building, information linking, and organization of assignment.
  - Emphasis on individualized learning style.

- **Provide Choices and Control**

When children feel they have choice and control of situation they will be calmer which helps in building the self-efficacy, trust and sense of identity.

- **Nurture Competence**
  - Provide small challenges with achievable goals
  - Integrate games , puzzle for fun and flexibility,
  - Promote the strength and interest of the student ,
  - Guided opportunities for participation ,
  - Acknowledge choices ,provide concrete praise

- **Prevent Re-Traumatization**

When trauma causes emotional and psychological damage to children, they may adopt a set of behavior pattern that put them on a path for further trauma .Their behavior ,for instance their quicker resort to violence, or as a consequence for their actions ,for instance punishment .Children may become re-traumatized and their problems are compounded.

- The educators may understand the cycle of trauma
- Acknowledging trauma and its triggers
- Avoiding stigmatizing and punishing students

2. **Non-Academic Measures**

Non-Academic measures of assisting a traumatized child are informal in nature. Such strategies focus on going beyond the formal system of education and helping the traumatized child to cope up with the handicaps of life. Following are the ways which can be adopted by educators in this respect-

- **Fostering Relationship**
  - Relationship are integral in providing safety and security to develop and grow
  - Connecting in a compassionate and understanding manner
  - Show genuine respect for students
  - Be kind and empathies with the challenges and experiences of student
  - Connect with a child on an emotional ,sensory level before moving to cognitive level
- **Linking to Mental Health Professionals**
  - Access to comprehensive health and mental health services
  - confidential review and plan of individual cases
- **Staff Training**
  - how to strengthen relationship between traumatized student and their caregiver
  - access outside support when needed
  - help traumatized child to regulate their emotions to ensure academic and social success
- **Routine Screen for Traumatic Symptoms**
  - Regular screening of students with the help of counselors and psychiatrist
- **Address Parents and Caregivers**
  - periodical address to parents and caregivers by the teachers
  - address of mental health services on different aspects of trauma
- **Extra-curricular activities**
  - engaging in sports and other physical activities
  - participation in cultural activities -art ,music,
  - Creative expressions like dancing, sketching, singing etc.

Conclusion

Children who experience trauma are at high risk as their rapidly developing brain is highly vulnerable .Very often their behavior is misinterpreted as misconduct. The formative years of one's life in school should not be mishandled but need intensive care, warmth and support. A trauma sensitive approach acknowledge the prevalence of trauma occurrence in students lives and create a flexible framework that provide universal support ,are sensitive to unique needs of the individual and also ensure avoiding re-traumatization.

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Impact of Video-Conferencing on Teaching-Learning Process in Education

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Abstract

Teaching and learning involves the process of transferring knowledge from the one who is giving to the one who is receiving. Teaching process cannot be performed if there is one element that is missing among the three of the teaching and learning elements. The teacher is considered as the element that has the main role in the teaching-learning process. Teachers teach through various ways and one such way is through video conferencing. The notable advantages of video conferencing are Faculty members keeping in touch with classes while attending conferences, Guest lecturers brought in classes from other institutions, Researchers collaborating with colleagues at other institutions on a regular basis without loss of time due to travel, Schools with multiple campuses collaborating and sharing professors, Schools from two separate nations engaging in cross-cultural exchanges, Faculty members participating in thesis defenses at other institutions, Administrators on tight schedules collaborating on budget preparation from different parts of campus, Faculty committee auditioning scholarship candidates, Researchers answering questions about grant proposals from agencies or review committees and Student interviews with an employers in other cities.

"We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world."

-David Warlick

Teaching and learning involves the process of transferring knowledge from the one who is giving to the one who is receiving. Teaching process cannot be performed if there is one element that is missing among the three of the teaching and learning elements. The teacher is considered as the element that has the main role in the

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teaching-learning process. He/she is considered as the so-called prime mover of the educational processes, thus he or she directs the flow of the whole process. The teacher is the one that facilitates the whole process of leaning. He or she directs its flow and serve as main control of the teaching learning process. The learners are considered as the key participant in the teaching and learning process. They are considered as the primary subject or the main reason why the process is implemented. The knowledge that acquired by the learners will decide if the teaching and learning objectives are achieved. Learners vary from one another in the aspects of learning. There are those learners that learn fast while there are those learners that learn in average or slower.

Video conferencing in general can enable teaching and learning to take place in a flexible environment, allowing dialogue and interactivity among participants based in different geographical locations and in different cultures. This collaboration can enhance the teaching and learning process and allow for various perspectives on issues. It opens up the teaching and learning process to different points of view and can create synergy between online communities which can lead to deeper intercultural understanding. Video-conferencing is a technology that allows users in different locations to hold face-to-face meetings without having to move to a single location. This technology is particularly convenient for seekers in different cities or even different countries because it saves the time, expense and hassle.

Video-conferencing is the conduct of a videoconference (also known as a video conference or video-teleconference) by a set of telecommunication technologies which allow two or more locations to communicate by simultaneous two-way video and audio transmissions. It has also been called 'visual collaboration' and is a type of groupware. In the 1990s, IP (Internet Protocol) based videoconferencing became possible and more efficient video compression technologies were developed, permitting desktop, or personal computer (PC)-based videoconferencing. In 1992 CU-See Me was developed at Cornell by Tim Dorcey et al. In 1995 the first public videoconference between North America and Africa took place, linking a techno fair in San Francisco with a techno-rave in Cape Town. Using video conferencing for initial teacher education has been growing since the late 1990s. Geographically, such uses have been integrated systematically into initial teacher-education programmes in Australia, followed by the USA and the UK. The development of video conferencing in Australia (Boylan, 1999; Crawford et al., 2002) reflects the long-standing tradition and necessity of distance education. The increasing uses of video conferencing in the UK are due to a range of factors: first, the additional funding that was made available to schools and teacher-training institutions in the late 1990s, for example,

as part of the Training Schools initiative which funded the original equipment used in the interactive Teaching and Learning Observatory at the University of Nottingham's School of Education (Coyle, 2004). Another factor was the increased availability of video-conferencing equipment in the market and the fact that video conferencing plays a significant role in maximizing staff time, reducing unnecessary travel and related CO2 emissions (Wang et al., 2008).

Components of Video-Conferencing:

The components required for a videoconferencing system include:

- Video input: video camera or webcam.
- Video output: computer monitor, television or projector.
- Audio input: microphones, CD/DVD player, cassette player, or any other source of Pre-Amp audio outlet.
- Audio output: usually loudspeakers associated with the display device or telephone
- Data transfer: analog or digital telephone network, LAN or Internet.
- Computer: a data processing unit that ties together the other components, does the compressing and decompressing, and initiates and maintains the data linkage via the network.

Kinds of Video-Conferencing:

There are basically two kinds of videoconferencing systems:

1. Dedicated systems have all required components packaged into a single piece of equipment, usually a console with a high quality remote controlled video camera. These cameras can be controlled at a distance to pan left and right, tilt up and down, and zoom. They became known as PTZ cameras. The console contains all electrical interfaces, the control computer, and the software or hardware-based codec. Omni directional microphones are connected to the console, as well as a TV monitor with loudspeakers and/or a video projector. There are several types of dedicated videoconferencing devices:

- Large group video-conferencing is non-portable, large, more expensive devices used for large rooms and auditoriums.
- Small group video-conferencing is non-portable or portable, smaller, less expensive devices used for small meeting rooms.

- Individual videoconferencing are usually portable devices, meant for single users, have fixed cameras, microphones and loudspeakers integrated into the console.

2. Desktop systems are add-ons (hardware boards, usually) to normal PCs, transforming them into videoconferencing devices. A range of different cameras and microphones can be used with the board, which contains the necessary codec and transmission interfaces. Most of the desktops systems work with the H.323 standard. Videoconferences carried out via dispersed PCs are also known as e-meetings.

Use of video-conferencing in education:

There are five exact ways to use the video conferencing system in education are-

1. Connect with Experts- Turning point learning center makes frequent use of video conferencing, and Ginger Lewman remarked, "It allows our students, to begin to develop not only essential communications skills, but also an acute awareness of global issues. It is always a joy to get to talk with experts and peers face to face and in real-time."

2. Virtual Field Trips-Any school field trip usually requires a lot of preparation — there's the food, then the transportation, then the students, and most importantly, making sure not to lose anybody. It's a whole lot harder to "wander off" when your field trip is on a screen in front of you. Whether to a museum or a zoo, virtual field trips are becoming increasingly common in video conferencing schools.

3. Working Together- Students in a classroom in, say, Wyoming could connect with a classroom in Wisconsin and work together on a collaborative activity. While in the past, collaborative activities might be limited to one classroom or one school, video conferencing allows students in multiple schools around the world to work together on relevant issues.

4. Accessing Previously Unavailable Courses- Some schools, especially those in rural areas, aren't able to offer advanced or detailed courses that their students might need. Even those in more populated areas often lack enough teachers in certain subject areas. Many schools could benefit from having an extra course over distance learning that they might not be able to offer otherwise. Instead of having to commute long distances between different schools, teachers would be able to instruct over video

conferencing. Video conferencing is a powerful medium for giving students unparalleled access to places (or procedures) they could have only dreamed of in the past.

5. Teaching the Teachers- Teachers speak to students over video conferencing, but also to teachers, providing a "students eye view of the classroom."Because learning is a continual process for teachers, and teachers must acquire a certain number of professional development hours (a percentage of which should be dedicated to technology) to maintain certification, video conferencing offers a convenient way for many school districts to meet these requirements.

Impact of video-conferencing on education:

Videoconferencing provides students with the opportunity to learn by participating in two-way communication forums. Furthermore, teachers and lecturers worldwide can be brought to remote or otherwise isolated educational facilities. Students from diverse communities and backgrounds can come together to learn about one another, although language barriers will continue to persist. Such students are able to explore, communicate, analyze and share information and ideas with one another. Through videoconferencing, students can visit other parts of the world to speak with their peers, and visit museums and educational facilities. Such virtual field trips can provide enriched learning opportunities to students, especially those in geographically isolated locations, and to the economically disadvantaged. Small schools can use these technologies to pool resources and provide courses, such as in foreign languages, which could not otherwise be offered. The benefits of videoconferencing are:

1. Benefits of Teacher - Teachers are able to provide an increased variety of content, guest speakers and joint, interschool content by the incorporation of conferencing into the classroom. Students can better understand cultural diversity by interacting with fellow students in foreign countries or receive lectures from seasoned professionals and industrial experts on the other side of the world or participate in virtual field trips from the comfort and safety of the classroom. Educational video conferencing provides teachers with more leeway, as they are able to administer both yearlong and/or semester learning without the boundaries of distance. The daily commute that some teachers typically make to reach their place of employment is eliminated when their options for reaching students are expanded. Time, money, and energy are saved in the process. Amongst fellow teachers, general departmental meetings and school/district collaborations can now

take place in a more convenient and timely manner through video conferencing. For some, the cumbersome early morning staff meeting can occur at a more accommodating moment.

2. Benefits of Learner - With the help of video conferencing, the classroom has become geographically limitless. No longer do students have to feel confined to their rooms, schools, or even to their countries. With a video conference set-up, they can reap the benefits of wisdom from all over the world. Field trips are a thing of the past. No more expensive travel – in the classroom itself, students can interact with researchers, other students, and tour places and facilities at the click of a button. Boring classroom lectures have been given a new lease of life. How? Because it is one thing for a teacher to explain a telescope, and quite another, to have his or her class look at an actual example being demonstrated by an astrologist from his laboratory, via video conferencing. It's simple and amazingly entertaining too. Students actively participate in video conferences, they, by default, learn the ability to out together presentations. There is a certain level of pre-knowledge needed to gain the most from a video conference interaction. This necessitates students to research in the library, and put together their learning in an orderly flow in advance. As a result, they inculcate in themselves the logic of presentations, and the value of quality research. While actually participating in a video conference session, students need to articulate their thoughts and communicate clearly and effectively. It is only when there is a two-way sharing that a video conference is successful. In doing so, students develop an inherent flair for public speaking. More importantly, they lose their inhibitions and grow into confident individuals, fully capable of putting across their points forthrightly.

3. Benefits of Distance Education-The flexibility of instruction through educational video conferencing is amazing, as Internet, email and other online functions open up more effective lines of communication. For some, this type of video conferencing allows students to take advantage of distance learning completely from the comforts of their home. The ability to study, complete assignments, and take tests on a more forgiving timeline and schedule creates a better work environment for both the teacher and student. Using advanced online techniques are becoming an increasingly popular mode of learning within higher education. Many students are now using video conferencing as they seek an online degree. Professor lectures are often delivered through this mode of learning, while

project collaborations with other students also take place through this medium.

4. Benefits of Parents-The bond between parent and teacher also increases, as video conferencing widens the scope of communication. There is no need to fret over ignored parent-teacher conferences, as these yearly meetings can easily take place at more convenient times for both instructors and parents. The guardian unable to touch bases with their child's teachers can now schedule a video conference to gain a face-to-face understanding regarding the curriculum and student progress. This saves both time and travel expense for both parties involved.

Conclusion:

Education is changing very rapidly, and keeping pace with the evolving technology of the day are teaching practices. As the world shrinks and becomes one big united village, Video Conferencing has made its way into the classroom, and has proved to have innumerable benefits. The notable advantages of video conferencing are Faculty members keeping in touch with classes while attending conferences, Guest lecturers brought in classes from other institutions, Researchers collaborating with colleagues at other institutions on a regular basis without loss of time due to travel, Schools with multiple campuses collaborating and sharing professors, Schools from two separate nations engaging in cross-cultural exchanges, Faculty members participating in thesis defenses at other institutions, Administrators on tight schedules collaborating on budget preparation from different parts of campus, Faculty committee auditioning scholarship candidates, Researchers answering questions about grant proposals from agencies or review committees and Student interviews with an employers in other cities.

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D.Phil Abstracts

Cost Benefit Analysis of Pre Service Teacher Education Programme at Secondary Stage

Prerna Madhyan

Objectives :

To analyze the current employment status, institutional cost, private cost, private direct benefits, net present value of the total cost and the benefits, internal rate of return of pre-service teacher education programme at secondary stage. Beside these quantitative analysis few qualitative benefits (perception about individual benefits, family benefits and societal benefits, attitude towards teaching, teaching self – efficacy and job satisfaction) are also studied by the researcher. All objectives are attained with reference to types of institutions, gender and type of residence.

Methodology : The descriptive method had been used in the present study. All the students registered in the session 2005-06 and 2006-07 and the session 2013-2014 for one year bachelor degree programme i.e. Bachelor of Education (B.Ed) of the four institutions of Allahabad– K.P. Training College, S.S. Khanna Degree College, Ewing Christian College and Allahabad Agriculture Deemed University, - constituted the population for the study. The sample was consisted of 550 students from different nature of teacher training institutions of Allahabad. Self constructed tool (Information Schedule for the Institutional Costs and Information Schedule for Private Costs and Benefits) and three standardized tool (Teaching Self Efficacy Inventory by K. S. Misra and Ruchi Dubey (2012), Attitude towards Teaching by K. S. Misra and Pratik Upadhyay (2012) and Job Satisfaction Scale for Teachers by Dixit was used in the study. ANOVA 't'-test and Pearson's product moment correlation were used to analyse the data.

Major Findings :

- The 64% pass out students got employment and only 24% were unemployed which showed that the larger percentage of students got placement.
- Regarding the labor and non-labor cost govt. funded institution had spent much higher.

- The unit cost was also derived for the different types of institutions. In both the sessions the unit cost of S.S.K.G.D.C. was lowest i.e.Rs.62480.56 and unit cost of K.P.T.C. was highest i.e. Rs. 492324.94.
- There was significant difference in tuition fees with reference to types of institution.
- There was significant difference in the private costs with reference to types of institutions, gender and type of residence.
- There was no difference in the private direct benefits with reference to types of institutions and gender.
- There was no significant relationship between private costs and other benefits for males. However, there was significant relationship between private costs and teaching self efficacy, teaching attitude and job satisfaction for males.
- There was no significant difference in the perception of individual benefits, family benefits and social benefits with reference to types of institution, gender and residence.
- The net present value was not uniform for different type of institutions as well as for male and female.
- The internal rate of return of K.P.T.C., S.S.K.G.D.C., E.C.C. and SHIATS were respectively, 8%, 5%, 4% and 2%.

Educational Provisions for Child Labour Under Right to Education with Respect to their Habitation and Educational Aspirations

Anupama Mehta

Objectives :

1. To identify children working as child labour with the help of community and other partners directly associated to them.
2. To study the educational provisions under Right to Education to child labour with respect to their habitation and educational aspiration.
3. To explain the phenomenon through substantive theory generated from the data.

Methodology : The research study was qualitative in nature, being exploratory study on children who are child labours Grounded Theory method was found to be the appropriate methodology. All children working as labours in Allahabad city formed the population of the study. The sample of the study included 20- child labours (rag pickers)**,**20 parents /guardians of child labours, 7-schools, 2-NGOs, 5-corporators, 30-Teachers, 8-School Management Committee members. Data was collected through observation, conversation and interview. After each bout of data collection key issues were noted down; Constant comparison and triangulation were the heart of the process. Compared interview (data) to interview (other data) themes emerged, these emerged themes and properties link provided the theory. Data collection, note-taking, coding and memoing occurred simultaneously from the beginning data, sorting occurred when all categories/themes were saturated. After sorting the researcher wrote the emergent themes.

Major Findings:

- Substantive theory grounded in data emerged from the analysis of the themes.
- Motivation theory was the theoretic view underlying the analysis of the narratives. While it was not the original intent of this study, it became clear as the children's narratives were explored and the theory emerged that the child labour were bound by their basic needs and the goal of their working is to satisfy their basic needs.

- The children and parent`s, first priority was work which compelled them to migrate from their native place due to poverty.
- The children and their parents had full awareness of the work and hazards in doing it, but their circumstances compelled them to work, the children lacked educational awareness which even aggravated their desire to work and prove their worth in earning.
- Poverty, educational aspiration and work awareness were working as intrinsic motivation for them to work rather than to study.
- They lack love and safety in their homes; they find solace and emotional safety in their work area among their peer group adult

A Study of Achievement in Physical Sciences of Mathematics and Non-Mathematics Group Students of Science Stream of Class XI in Relation to their Scientific Aptitude and Reasoning Ability

Justin Pradeep Sahae

Objectives :

1. To study the relationship between Achievement in Physical Sciences and Scientific Aptitude of students of Science stream of class XI.
2. To study the relationship between Achievement in Physical Sciences and Reasoning Ability of students of Science stream of class XI.
3. To compare the Achievement in Physical Sciences of students of Science stream having high, moderate and low Scientific Aptitude.
4. To compare the Achievement in Physical Sciences of students of Science stream having high, moderate and low Reasoning Ability.
5. To find out the extent to which Scientific Aptitude and Reasoning Ability contribute to the prediction of Achievement in Physical Sciences of students of Science stream of class XI.
6. To compare the Achievement in Physical Sciences of Mathematics and Non- Mathematics group students of Science stream of class XI.

Methodology : The present study is based on the Descriptive method of Educational Research. The population for the study includes all the students of Science Stream of Class XI of both Mathematics and Non-Mathematics Group of all the schools of CBSE and ISE Board of Allahabad. The sample of the study includes 305 Science Stream Class XI students each of CBSE and ISE Board Schools which is selected by Random Sampling from different areas of Allahabad. The total sample of students was 610. To study the achievement in Physical Sciences, two achievement tests in Physics and Chemistry have been constructed and standardized. Scientific Aptitude Test constructed by *D.R. Singh* was adopted.

To measure reasoning ability test constructed by *Sadhna Bhatnagar* was adopted. Product moment coefficient of correlation, ANOVA, regression, and t-test were used to analyze the data.

Findings :

- The Achievement in Physical Sciences of students (both Mathematics and Non-Mathematics group) of Science stream of Class XI is positively related to their Scientific Aptitude.
- The Achievement in Physical Sciences of students (both Mathematics and Non-Mathematics group) of Science stream of Class XI is positively related to their Reasoning Ability.
- The Achievement in Physical Sciences is different for students (both Mathematics and Non-Mathematics group) of Science stream of Class XI having different levels of Scientific Aptitude.
- The Achievement in Physical Sciences is different for students (both Mathematics and Non-Mathematics group) of Science stream of Class XI having different levels of Reasoning Ability.
- Scientific Aptitude and Reasoning Ability of students (both Mathematics and Non-Mathematics group) of Science stream of Class XI contribute significantly in the prediction of Achievement in Physical Sciences.
- There is a significant difference between the Mathematics and Non-Mathematics groups students' Achievement in Physical Sciences in class XI. This stands true Genderwise and also Boardwise.

A Study of Examination Stress among University Students in Relation to their Emotional Intelligence, Academic Engagement and Personality

Aradhana Tripathi

Objectives :

1. To study the relationship between examination stress and emotional Intelligence.
2. To study the relationship between examination stress and academic engagement.
3. To study the relationship between examination stress and personality.
4. To find out whether students differing with respect to emotional intelligence differ on examination stress.
5. To find out whether students differing with respect to academic engagement differ on examination stress.
6. To find out whether students with high, moderate and low neuroticism differ on examination stress.
7. To find out whether a difference exists in the examination stress of students with high, moderate and low extraversion.
8. To find out the extent to which academic engagement, emotional intelligence, personality contributes to prediction of examination stress.

Methodology : Causal comparative and correlational survey method of descriptive research have been used to conduct the present study. A sample of 640 students university students were selected through multistage random sampling method. Examination Stress Scale of K. S. Misra, Test of Emotional Intelligence (student form) of K. S. Misra, Maudsley Personality Inventory (MPI) of Jalota and Kapoor and self-constructed Academic Engagement Inventory: were as tools for collection of data.

Major Findings :

- Examination stress is negatively related to academic engagement, positively related to neuroticism, and not related to emotional intelligence and extraversion dimension of the personality.
- As compared to students with moderate academic engagement, students with high level of academic engagement feel less examination stress. Students with high or moderate academic engagement do not differ from those having low level of academic engagement on examination stress.
- Students with low, moderate and high emotional intelligence do not differ from one another on examination stress.
- As compared to students with moderate neuroticism, students with high level of neuroticism feel more examination stress. Students with moderate neuroticism feel more examination stress than those with low neuroticism.
- As compared to students with low or moderate extraversion, students with high level of extraversion feel more examination stress. Students with high or moderate extraversion do not differ from those with low extraversion.
- Neuroticism emerged as the best predictor of examination stress among students.

A Study of Reasoning Ability, Numerical Ability, Memory and Scientific Aptitude as Predictors of Achievement in Biological Science in Intermediate Classes

Dilip Kumar Singh

Objectives :

1. To study the relationship between achievement in Biological Science and Reasoning ability, Numerical ability, Memory and Scientific Aptitude of Intermediate students.
2. To compare the achievement in Biological Science of Intermediate students having high, moderate and low Reasoning ability Numerical ability, Memory and Scientific Aptitude.
3. To find out the extent to which Reasoning ability, Numerical ability, Memory and Scientific Aptitude contribute to the prediction of achievement in Biological Science among Intermediate students.

Methodology : In this study Causal comparative and correlation survey method of descriptive research have been used. In the present study the population constituted of all the students (both boys and girls students) studying Biology at intermediate level of Uttar Pradesh. Multistage Random sampling technique was employed by the researcher. The data for the present study was collected from 600 students of class XI who have opted Biology in intermediate classes belonging to the various regions of Uttar Pradesh. To know achievement in Biological Science, Reasoning ability, Numerical ability, Memory and Scientific Aptitude of Students different standardized tools namely; Biological Science Achievement Test constructed and standardized by researcher, Reasoning Ability Test by Sadhna Bhatnagar, Numerical Ability Test by D.R. Singh, Test of Memory by D.R. Singh, and Scientific Aptitude Testby D.R. Singh were used. To analyze the data the Product-Moment Correlation, ANOVA, and Multiple Regression Analysis were used.

Findings :

- Reasoning ability Numerical ability, Memory and Scientific Aptitude are positively related to achievement in Biological Science among boys and girls.

- As compared to students with low Reasoning ability, Numerical ability, Memory and Scientific Aptitude students with moderate or high Reasoning ability, Numerical ability, Memory and Scientific Aptitude have high achievement in Biological Science among both boys and girls.
- Reasoning Ability and Numerical Ability emerged as the best predictors of achievement in Biological Science among both boys and girls. Memory and Scientific Aptitude act as the suppression variables i.e. they reduce spurious influence of other variables and minimize undesirable effect of the factors.

A Study of Values, Social Behaviour, Adjustment and Academic Achievement Motivation of the Students Belonging to Orphanages

Caroline Beck

Objectives:

1. To study the values of students belonging to orphanages.
2. To study the social behaviour of students belonging to orphanages.
3. To study the adjustment of students belonging to orphanages.
4. To study the academic achievement motivation of students belonging to orphanages.
5. To do case study on any 10 selected cases.
6. To compare the values, social behaviour, adjustment, academic achievement motivation of family reared students and orphanage reared students.

Methodology : Descriptive Survey method was used to conduct the study. The population of the study comprised of orphanage- reared students and family-reared students from 3 KAVAL towns (Allahabad, Varanasi and Lucknow) of Uttar Pradesh. The sample consisted of 317 orphanage-reared children of classes' 6 to 8 standard. A purposive sampling method was followed for selecting the sample. 102 family-reared students were studying with them were also selected randomly for the study. Case study was done on 10 selected orphan students.

Findings :

- Material incentive was most preferred among total orphan students.
- Aggression was found to highest and concern for others was found to be lowest among total orphan students.
- Social adjustment is higher than emotional and educational adjustment among total orphan students.

- Orphan students have average academic achievement motivation.
- Significant difference was seen in Values, Social behaviour, Adjustment and Academic achievement motivation orphanage-reared students and family-reared students belonging to orphanages.

A study of emotional intelligence, personality, classroom learning environment and self-concept as predictors of achievement in Commerce among higher secondary students

Ashish Mishra

Objectives :

1. To find out the relationship of achievement in Commerce with emotional intelligence, personality, classroom learning environment & self-concept
2. To find out whether students with high, moderate and low emotional intelligence, personality factors, classroom learning environment & self-concept differ from one another in their achievement in Commerce.
3. To find out the extent to which emotional intelligence, personality, classroom learning environment and self-concept can predict achievement in Commerce among higher secondary students.
4. To construct and standardize a 'Commerce Achievement Test'
5. To find out whether male students differ from female students on emotional intelligence personality factors, classroom learning environment, self-concept & achievement in Commerce.

Methodology : Causal-comparative and correlational survey method of descriptive research have been used to conduct the present research. The population of this study comprises of male and female students studying in Intermediate classes (Commerce stream) of U.P. Board schools in Allahabad city of Uttar Pradesh. Six hundred students (300 male and 300 female) studying in twelve schools of Allahabad city have been selected as sample by using multi-stage stratified sampling method. Data collection has been done by using Commerce Achievement Test constructed by the researcher (CAT), Test of Emotional Intelligence (Student Form) constructed by K.S. Misra, Sixteen Personality Factor questionnaire constructed by R.B. Cattell and adopted by S.D. Kapoor and V. K. D. Tripathi (Hindi Version) Form-C, Learning Environment Inventory constructed by K.S. Misra, Swatva Bodh Parikshan (SBP- A test of self-concept), constructed by Sherry, Verma and Goswami. For the purpose of data analysis t-ratio, product

moment coefficient of correlation, one way ANOVA, L. S. D. test and Step-wise multiple regression analysis have been used to by using SPSS 17.

Major Findings :

- For male students, two dimensions of self-concept- emotional tendencies and academic status, two dimensions of classroom learning environment- apathy and diversity, personality factor O (Self-assured vs. Apprehensive) and emotional intelligence emerged as the best predictors of achievement in Commerce

- For female students, four dimensions of classroom learning environment- encouragement, friction, difficulty and speed, three areas of self-concept- health & physique, habits & behaviour, and mental health, personality factor B (Concrete-thinking vs. Abstract-thinking) and emotional intelligence emerged as the best predictors of achievement in Commerce.

A Study of the Impact of Scientific Attitude on Academic Achievement, Occupational Aspiration and Adjustment

Dharmendra Kumar Sarraf

Objectives :

1. To study the relationship between academic achievement and scientific attitude among secondary class students of class XI.
2. To study the relationship between occupational aspiration and scientific attitude among secondary class students of class XI.
3. To study the relationship between adjustment and scientific attitude among secondary class students of class XI.
4. To compare the academic achievement among secondary class students having high, moderate and low scientific attitude of class XI.
5. To compare the occupational aspiration among secondary class students of class XI having high, moderate and low scientific attitude.
6. To compare the adjustment among secondary class students of class XI having high, moderate and low scientific attitude.
7. To study the contribution of scientific attitude in the prediction of academic achievement, occupational aspiration and adjustment among secondary class students of class XI.

Methodology : Causal-comparative survey method of descriptive research was used in the present study. The sample for the study consisted of 600 class XI students of Allahabad district of Uttar Pradesh The tools used in the study includes - Scientific Attitude Questionnaire by K.S. Misra, Occupational Aspiration Scale by J.S. Grewal, Adjustment Inventory for School Students by A. K. P. Sinha & R. P. Singh and annual examination marks of class X of Board of High School and Intermediate Uttar Pradesh. Product moment coefficient of correlation, ANOVA and linear regression were used for the analysis of the data.

Major Findings :

1. Academic achievement, occupational aspiration and adjustment are positively related with scientific attitude among secondary students of class XI.
2. Secondary students of class XI with the high, moderate and low level of scientific attitude do not differ from one another on academic achievement.
3. Secondary students of class XI with the high, moderate and low level of scientific attitude do not differ from one another on occupational aspiration.
4. Secondary students of class XI with the high, moderate and low level of scientific attitude do not differ from one another on adjustment.
5. Scientific attitude can explain 6.81% variance of academic achievement among secondary students of class XI.
6. Scientific attitude can explain 2.01% variance of occupational aspiration among secondary students of class XI.
7. Scientific attitude can explain 3.24% variance of adjustment among secondary students of class XI.

Effectiveness of Concept Attainment and Concept Mapping Teaching Strategies for Teaching Biology to Class IX Students

Deepika Pandey

Objectives :

1. To investigate the effectiveness of concept mapping teaching strategy forteaching Biology.
2. To investigate the effectiveness of concept attainment teaching strategy forteaching Biology.
3. To compare the effectiveness of concept mapping, concept attainment andtraditional strategies of teaching Biology.
4. To compare gain scores of more and less intelligent students.
5. To compare gain scores of more and less intelligent students exposed to different teaching strategies.
6. To compare gain scores of students differing with respect to personality traits.
7. To study the effect of interaction between teaching strategy and personality trait on gain score.

Methodology : For finding out the effectiveness of concept attainment and concept mapping teaching strategies for teaching Biology to boys/girls of IX class, non-equivalent single group pre-test post-test quasi experimental design was used. For studying the effects of exposure to concept mapping, concept attainment and traditional teaching strategies on gain score of students differing with respect to intelligence or personality traits 3x2factorial design was used. The population for this study consisted of 310 students (boys and girls) of class IX of Prayagraj city of U.P.. Cluster sampling was adopted . Three teaching strategies have been taken as independent variable, Achievement in terms of gain scores' has been taken as dependent variable, and Personality traits and intelligence have been considered as the intervening variables. Biology Achievement Test constructed by the researcher, Neo- Personality Questionnaire constructed by K. S. Misra and Culture Fair Intelligence Test Scale 3, Form A constructed by Cattell & Cattell have been used.

Product moment coefficients of correlation, 't' test and ANOVA on 3 x 2 factorial design has been used

Major Findings:

- Concept mapping and concept attainment teaching strategies are effective for teaching Biology to boys and girls. Concept attainment teaching strategy is more effective than traditional teaching strategy for teaching Biology to boys while concept mapping teaching strategy is more effective than concept attainment teaching strategy for teaching Biology to girls.
- For more intelligent girls' exposure to traditional teaching is more effective than concept attainment and concept mapping teaching strategies for teaching Biology while exposure to concept mapping teaching strategy is more effective than concept attainment teaching strategy for teaching Biology to more intelligent girls'. For less intelligent girls' exposure to concept mapping and concept attainment teaching strategies are more effective than traditional teaching strategy for teaching Biology whereas exposure to concept mapping teaching strategy is more effective than concept attainment teaching strategy for teaching Biology for the same group. On the other hand Concept mapping, concept attainment and traditional teaching strategies are equally effective for teaching Biology to more and less intelligent boys.
- For more alienated, anxious and divergent girls exposure to traditional teaching is more effective than concept mapping and concept attainment teaching strategies for teaching Biology while exposure to concept mapping teaching strategy is more effective than concept attainment teaching strategy for teaching Biology for the same. For less alienated, anxious and divergent girls exposure to concept mapping and concept attainment teaching strategies are more effective than traditional teaching strategy for teaching Biology whereas exposure to concept mapping teaching strategy is more effective than concept attainment teaching strategy for teaching Biology for the same. Exposure to concept mapping, concept attainment and traditional teaching strategies is equally effective for teaching Biology to more and less alienated, anxious and divergent boys.
- Mean gain score for more intelligent girls is greater than that for less intelligent girls. Mean gain score for less crooked girls is greater than that for more crooked girls. Mean gain score for less analytical boys is greater than that for more analytical boys. Mean gain score for more divergent girls is greater than that for less divergent girls.

Aggression among Undergraduate Students in Relation to their Self-Esteem, Family Environment and Academic Facilities in Institutions.

Kiran Noopur Shukla

Objectives :

1. To study the relationship between aggression among students and their self-esteem.
2. To study the relationship between aggression among students and their family environment.
3. To study the relationship between aggression among students and academic facilities in Institutions.
4. To find out whether students having different levels of self-esteem differ one another in aggression.
5. To find out whether students perceiving different levels of various dimensions of family environment differ one another in aggression.
6. To find out whether students perceiving different levels of academic facilities differ from one another in aggression.
7. To study the contribution of self-esteem, family environment and academic facilities to aggression.

Methodology : Survey method of descriptive research has been used in the present study. Sample of study was comprised of 550 undergraduates' students, studying in arts stream of Allahabad University and its constituent colleges. For the purpose of data collection Aggression Inventory (AI) adapted by M.K. Sultana (2006), originally constructed by Buss-Durkee (1957), Family Environment Scale – originally constructed by Moos (1974), adapted and standardized by M.C. Joshi & Om Prakash Vyas. (1987), Academic Facility Questionnaire - questionnaire constructed by the researcher and Self-esteem Inventory – constructed and standardized by M.S. Prasad & G.P. Thakur (1977) were used..To analyse the data

Product moment coefficients of correlation, One Way ANOVA followed by multiple comparisons (Post hoc test) , stepwise multiple regression and t-ratio were used. Significance of F-ratio, t-ratio and r was tested at.05 level

Major Findings :

- Aggression among male and female students is negatively related to self-esteem**.**
- No relationship was found between aggression and family environment and aggression and academic facilities in institutions.
- As compared to male students with low self-esteem, male students with high self-esteem have low aggression.
- Male students with moderate self-esteem do not differ from male students with low and high self-esteem on aggression.
- As compared to female students with low self-esteem, female students with high self-esteem have low aggression.
- Female students with moderate self-esteem do not differ from female students with low and high self-esteem on aggression.
- Male and female students perceiving low, moderate and high levels of dimensions of family environment do not differ from one another in aggression, except in the case of female students, where in conflict dimension, as compared to female students perceiving low conflict, female students perceiving moderate and high conflict have high aggression.
- As compared to female students perceiving moderate conflict, female students perceiving high conflict in family environment do not differ from one another in aggression.
- Students perceiving good, average and poor academic facilities in institutions do not differ from one another in aggression. Finally, self-esteem emerged as the only variable contributing to aggression.

A Study of Academic Motivation and Academic Problems among Minority Students Studying in Open Universities in General and Professional Streams

Mohammad SaquibTaufique

Objectives :

1. To describe academic motivation of minority and majority students of open and distance learning system in the context of gender, course, and institution.
2. To describe academic problems of minority and majority students of open and distance learning system in the context of gender, course, and institution.
3. To compare academic motivation of minority community open leaning system with that of majority community open distance learning system students in the context of their gender, course, and institution.
4. To compare academic problems of minority community open leaning system with that of majority community open distance learning system students in the context of their gender, course, and institution.

Methodology : In the study survey method of research was used..The sample of the present study was 800students. The sample of present study was selected continuously on the basis of presence of students during study centre visits of Distance Education students. Firstly160 students selected from National Open University (IGNOU) and 340 students were selected from three Institutes of Distance Education viz. MAANU, JMI, and AMU, and lastly 300 students were selected from Uttar Pradesh RajarshiTondon Open University (UPRTOU). The sample covered 445Boys and 255Girls students, 475 students of General courses and 325 students of Professional courses. The majority group students were 340 and minority group students were 460. Self-constructed Academic Motivation Scale and Academic Problems Scale were used for the collection of the data. The data collected was analyzed by the following descriptive statistical techniques. Percentages, Mean and graphical presentation (Bar diagram).

Major Findings:

- The minority students faced major problems related to the area of study centre i.e. regarding library, teacher/coordinator behaviour, educational counselling, examination centre related and examination system related problems.
- The minority students faced same problem related to admission, curriculum, self-learning material, internal/external assessment and examination results.
- Minority students faced more number of problems concerning different areas than that of their majority counterparts.

A Study of Learning Styles and Process of Development of Professional Skills among Students of Professional Courses of Open Universities

Subhash Chandra

Objectives :

1. To study the learning styles of learners of professional courses offered by Open Universities in the context of nature of courses and universities.
2. To study the processes of development of professional skills as perceived by learners of professional courses offered by open universities: coursewise and universitywise.
3. To study the association between the perceptions of students towards ODL based instructional processes of professional programmes and their learning styles in the context of universities.

Methodology : Population of the study consisted of all the second year B.Ed. trainees and MBA students enrolled in different programme study centres of IGNOU and UPRTOU in Uttar Pradesh. The sample of the study covered 200 final year B.Ed. trainees of IGNOU and 200 final year B.Ed. trainees of UPRTOU. 60 MBA final year students were selected from IGNOU and 60 MBA students from UPRTOU. In order to collect data the researcher used adapted GRSLS Scales, Questionnaires for B.Ed. trainees, Questionnaires for MBA students, Perception scale.

Major Findings :

- Different learning style and nature of professional courses offered by IGNOU and UPRTOU are significantly associated with each other.
- Majority B.Ed. students possessing higher level on different learning styles than that of their MBA counterparts.
- Different learning styles of ODL mode B.Ed. and MBA students and university background are not significantly associated with each other.

- Professional courses students of state Open University and national Open University possessed similar pattern of learning styles.
- Learning styles of ODL mode students of B.Ed. and MBA courses are of independent nature. However they adopted collaborative and participant behavior in different kinds of instructional practices organized at study centre level, as well as at their own practicing organisations.
- They were dependent on various learning resources provided by IGNOU and UPRTOU in the form of study materials, lectures, workshops and supervisors/mentors.
- Examination orientations also made them competitive in nature.
- Higher percentages of students were adopting positive learning styles, competitions in instructional practices were visible among ODL mode professional course students.

A Study of Learning Stress, Adjustment and Mental Health as Correlates of Achievement in Mathematics and Science among VIII Grade Students

Suman Pandey

Objectives :

1. To find out the relationship between learning stress and achievement in Mathematics and Science among VIII grade students.
2. To find out the relationship between adjustment and achievement in Mathematics and Science among VIII grade students.
3. To find out the relationship between mental health and achievement in Mathematics and Science among VIII grade students.
4. To find out the difference between high and low learning stress groups of students on achievement in Mathematics and Science among VIII grade students.
5. To find out the difference between high and low adjustment groups of students on achievement in Mathematics and Science among VIII grade students.
6. To find out the difference between high and low mental health groups of students on achievement in Mathematics and Science among VIII grade students.

Methodology : The survey method was selected for conducting the present study. All the students of class VIII studying in Parishadeeya Vidhalayas of Allahabad district constitute a population for this study. The sampling has been completed in two steps. First of all, the list of upper primary schools in urban area has been received from Shiksha Adhikshak. Out of 33 schools, 18 schools have been randomly selected and all the students of class VIII were included in the sample. 262 students have been selected from urban area. Multistage random sampling method has been applied for selecting sample from rural area. Out of total eight tehsils of Allahabad district, three tehsils i.e. Phulpur, Handia and Karchhana were

selected randomly for the data collection. From each tehsil, one block i.e. Phulpur, Dhanupur and Chaka has been selected randomly and six schools were selected randomly from each block and all the students of class VIII were included in the sample. 342 students have been selected from rural area. Total 604 (262 urban=342 rural) students have been included in the present study.For measuring learning stress "Learning Stress Inventory developed by Mishra has been used. For measuring adjustment "Adjustment Inventory for school students" developed by A.K.P. Sinha and R.P. Singh has been used. For measuring mental health "Mental Health Battery" developed by Arun Kumar Singh and Alpana Sen Gupta has been used. For measuring achievement in Mathematics and Science achievement test developed by researcher herself has been used. The collected data was analyzed with the help of t-test and Pearson's co-efficient of correlation.

Major Findings :

- Learning stress was found to be negatively related to achievement in Mathematics
- Learning stress was found to be negatively related to achievement in Science.
- Adjustment was found to be positively related to achievement in Mathematics.
- Adjustment was found to be positively related to achievement in Science.
- Mental health was found to be positively related to achievement in Mathematics.
- Mental health was found to be positively related to achievement in Science.
- High and low learning stress groups of students were found significantly different on achievement in Mathematics.
- High and low learning stress groups of students were found significantly different on achievement in Science.
- High and low adjustment groups of students were found significantly different on achievement in Mathematics.
- High and low adjustment groups of students were found significantly different on achievement in Science.
- High and low mental health groups of students were found significantly different on achievement in Mathematics.
- High and low mental health groups of students were found significantly different on achievement in Science.

Stress, Teaching Aptitude and Emotional Intelligence as Predictors of Mental Health among B.Ed. Students.

Swangi

Objectives :

1. To study the relationship between stress and mental health among B.Ed. students.
2. To study the relationship between teaching aptitude and mental health among B.Ed. students.
3. To study the relationship between emotional intelligence and mental health among B.Ed. students.
4. To compare mental health of B.Ed. students with high, moderate and low levels of stress.
5. To compare mental health of B.Ed. students with high, moderate and low teaching aptitude. To compare mental health of B.Ed. students with high, moderate and low emotional intelligence.
6. To find out the extent to which stress, teaching aptitude and emotional intelligence predict mental health among B.Ed. students.

Methodology : In this study causal comparative and correlation type survey method of descriptive research have been used. The population of the study comprises of the student-teachers enrolled in B.Ed. course of colleges and Universities located in Allahabad and Varanasi cities. Cluster sampling technique was adopted to select 602 B.Ed. students as sample subjects. The independent variables of the study are stress, teaching aptitude and emotional intelligence and mental health is the dependent variable. Mental Health Inventory constructed by K.S. Misra and Nidhi Srivastava and adapted by the researcher, Stress Scale for Student-teachers and Test of Emotional Intelligence both constructed by K.S. Misra and Teaching Aptitude Test constructed by Jai Prakash and R.P. Srivastava were used for the collection of relevant data. Stepwise multiple regression, Product moment coefficients of correlation, F-ratios, t-ratios have been used for the analysis of data.

Major Findings -

- Female B.Ed. students are better on mental health, emotional intelligence and teaching aptitude than male B.Ed. students.
- Stress is negatively related to overall mental health among male B.Ed. students while for female B.Ed. students' overall mental health is not related to stress.
- Emotional intelligence is positively related to overall mental health and its seven dimensions among male and female B.Ed. students.
- Teaching aptitude is positively related to overall mental health and its seven dimensions among male and female B.Ed. students.
- Male B.Ed. students with low, moderate and high stress do not differ on their overall mental health and its seven dimensions whereas female B.Ed. students with low stress are better than female B.Ed. students with moderate stress on overall mental health.
- Male and female B.Ed. students with high emotional intelligence are better than male and female B.Ed. students with low or moderate emotional intelligence on overall mental health as well as its seven dimensions.
- Male and female B.Ed. students with high teaching aptitude are better than male and female B.Ed. students with low or moderate teaching aptitude on overall mental health as well as its seven dimensions.
- Teaching aptitude and emotional intelligence emerged as the best predictors of overall mental health as well as social, emotional, physiological, life-attitude dimensions of mental health among male and female B.Ed. students.
- Teaching aptitude, emotional intelligence and stress emerged as the best predictors of self-esteem dimensions of mental health among male and female B.Ed. students.
- Emotional intelligence, teaching aptitude and stress emerged as the best predictors of cognitive and self-efficacy dimensions of mental health among female B.Ed. students.

A Study of Occupational Stress and Job Involvement in Relation to Professional Commitment among Teachers Serving in Aided and Self-financed Colleges.

Vandana Yadav

Objectives :

1. To study the relationship between occupational stress and professional commitment among teachers serving in aided degree colleges.
2. To study the relationship between occupational stress and professional commitment among teachers serving in self-financed degree colleges.
3. To study the relationship between job involvement and professional commitment among teachers serving in aided degree colleges.
4. To study the relationship between job involvement and professional commitment among teachers serving in self-financed degree colleges.
5. To study the relationship between occupational stress and job involvement among teachers serving in aided degree colleges.
6. To study the relationship between occupational stress and job involvement among teachers serving in self-financed degree colleges.
7. To compare the occupational stress among teachers serving in aided and self-financed degree colleges.
8. To compare the job involvement among teachers serving in aided and self-financed degree colleges.
9. To compare the professional commitment among teachers serving in aided and self-financed degree colleges.
10. To compare the professional commitment of aided degree college teachers having high, moderate and low occupational stress.
11. To compare the professional commitment of self-financed degree college teachers having high, moderate and low occupational stress.
12. To compare the professional commitment of aided degree college teachers having high, moderate and low job involvement.

13. To compare the professional commitment of self-financed degree college teachers having high, moderate and low job involvement.

Methodology : In the present study descriptive method of the research was used. The population of the present study comprised of all male and female degree college teachers serving in aided and self-financed colleges in KAVAL towns of Uttar Pradesh. The investigator selected three KAVAL towns; they were Kanpur, Agra and Lucknow. By using the random sampling, investigator selected 7 aided and 7 self-financed colleges affiliated with Kanpur, Agra and Lucknow Universities. Thus 21 aided and 21 self-financed colleges were selected. Ten teachers were randomly selected from each college. The final sample consisted of 420 teachers. The multistage stratified sampling method has been employed for the study. To analyze the raw scores of occupational stress, job involvement and professional commitment Product moment coefficients of correlation, t-ratio and one way ANOVA were used. Teacher's Stress Scale constructed by Misra (2014), Job Involvement Scale constructed by Singh (1984) and Professional Commitment Scale For Teachers constructed by Kaur, Ranu & Brar (2011) were used as tools for data collection.

Major Findings :

- Occupational stress was not found to be significantly related with the professional commitment of teachers, science and arts teachers, male and female teachers of aided degree colleges.
- Occupational stress was found to be significantly and positively related with the professional commitment of teachers and science teacher of self-financed degree colleges. With regard to male and female teachers and arts teachers of self-financed degree colleges occupational stress was not found to be significantly related with the professional commitment.
- Job involvement was not found to be significantly related with the professional commitment of teachers, male and female teachers, science and arts teachers of aided degree colleges.
- Job involvement was not found to be significantly related with the professional commitment of male teachers, arts and science teachers of self-financed degree colleges. While, job involvement of female teachers of self-financed degree colleges was found to be significantly and positively related with the professional commitment.
- Occupational stress was found to be negatively related with the job involvement of teachers, male and science teachers of aided degree colleges.

But, in case of Female and arts teachers of aided degree colleges, occupational stress was not found to be significantly related with the job involvement.

- Occupational stress was found to be negatively related with the job involvement of teachers, male and female and arts teachers of self-financed degree colleges. While science teachers of self-financed degree colleges was not found to be significantly related with the job involvement.
- As compared to teachers of self-financed degree colleges, teachers, male and female teachers, science and arts teachers of aided degree college have more occupational stress.
- As compared to teachers of self-financed degree colleges, teachers, male and female teachers and arts and science teachers of aided degree colleges have more job involvement.
- As compared to teachers of self-financed degree colleges, teachers, male and female teachers, science and arts of aided degree college have more professional commitment.
- As compared to aided degree colleges, teachers with low occupational stress, teachers with moderate or high occupational stress had high professional commitment. While aided degree college male and female teachers, science and arts teachers with low, moderate or high occupational stress did not differ significantly from one another on professional commitment.
- Self-financed degree college teachers, male and female teachers and science and arts teachers with low, moderate or high occupational stress did not differ significantly from one another on professional commitment.
- Aided degree college teachers, male and female teachers and science and arts teachers with low, moderate or high job involvement did not differ significantly from one another on professional commitment.
- Self-financed degree college teachers, female teachers and science and arts teachers with low, moderate or high job involvement did not differ significantly from one another on professional commitment. while male teachers with low job involvement, male teachers with high job involvement had high professional commitment

Effectiveness of Computer Based and Paper – Pencil Tests at Intermediate Stage

Ananya Singh

Objectives :

1. To study the correlation of achievement scores of intermediate students in biology administered through PPT and CBT.
2. To study the association of the perceptions of intermediate teachers regarding PPT and CBT with respect to their gender, subject background and their computer efficiency level.
3. To study the association of the perceptions of intermediate students regarding PPT and CBT with respect to their gender, subject background and their computer efficiency level.

Methodology : In this study, descriptive survey method was used. For sampling, purposive techniques were used along with two tools of perception tool regarding computer-based test and a standardized test for 11^{th} class based on NCERT biology book. These test were prepared in parallel mode for paper-pencil and computer-based test separately.

Major Findings :

- Overall achievement score of the students are giving significant correlation through these two modes so the conventional method i.e. paper pencil method may be substituted by the new one, computer based test method. Further it can also be inferred that mode of presentation of stimulus on students has no effect on their responses and they will performed equally.
- Achievement score of the students at the knowledge, comprehension and application domain are giving significant correlation through both of these modes therefore it can be said that both of these two test methods have same effect on the achievement score of students in the biology subject when rest other factors remains the same
- Further, the perception of school stakeholders, consisting of teachers and students inferred that computer based test is effective to the paper pencil test in enabling the immense set of question paper set, in its accessibility, giving real

time quick results, disabled students friendly, needed less support staff, providing extra time during, efficient test and users adaptive.

- Perception of stakeholders depicted that computer-based test is equally effective in future saving, enabling full security and its cost effectiveness.

प्राथमिक शिक्षा की गुणवत्ता उन्नयन में पर्यवेक्षण प्रणाली की प्रभावशीलता का अध्ययन

राजेश कुमार यादव

उद्देश्य :

1. प्राथमिक शिक्षा में पर्यवेक्षण की कार्य पद्धति की वर्तमान स्थिति का अध्ययन करना।
2. प्राथमिक शिक्षा स्तर पर पर्यवेक्षण के सन्दर्भ में आने वाली विभिन्न समस्याओं का अध्ययन करना।
3. प्राथमिक विद्यालयों की गुणवत्ता तथा पर्यवेक्षणसाहचर्य का अध्ययन करना।
4. विभिन्न गुणवत्ता स्तर वाले विद्यालयों में कार्यरत अध्यापकों का पर्यवेक्षण के प्रति दृष्टिकोण का अध्ययन करना।

शोध अभिकल्प : प्रस्तुत शोध अध्ययन में जनसंख्या के रूप में उत्तर प्रदेश इकाई के समस्त बेसिक शिक्षा अधिकारी, खण्ड शिक्षा अधिकारी, परिषदीय प्राथमिक विद्यालय तथा परिषदीय प्राथमिक विद्यालयों में कार्यरत अध्यापक है। प्रस्तुत शोध अध्ययन में न्यादर्श चयन के लिए सर्वप्रथम उत्तर–प्रदेश को तीन भागों (पूर्व, मध्य एवं पश्चिमी) में स्थित जिलों को सूचीबद्ध किया गया, जिलों का चयन करने हेतु बहुस्तरीय न्यादर्श विधि का प्रयोग किया गया और उत्तर प्रदेश के प्रत्येक भाग से दो–दो जिलों का चयन यादृच्छिक आधार पर किया गया। चयनित सभी 6 जिलों के बेसिक शिक्षा अधिकारियों को न्यादर्श में सम्मिलित किया गया तथा चयनित सभी 6 जिलों से 60 खण्ड शिक्षा अधिकारियों को न्यादर्श में सम्मिलित किया गया। न्यादर्श में चयनित सभी जिलों से 5–5 विकास खण्ड तथा प्रत्येक विकास खण्ड से 4–4 परिषदीय प्राथमिक विद्यालयों (जिसमें समान संख्या में नियमित तथा अनियमित पर्यवेक्षण वाले विद्यालय) का चयन यादृच्छिक आधार पर किया गया। न्यादर्श में चयनित सभी 6 जिलों के श्रेणी (क) एवं श्रेणी (घ) के 50–50 परिषदीय प्राथमिक विद्यालयों का चयन सोद्देश्य न्यादर्श विधि के द्वारा किया गया तथा इनमें कार्यरत सभी (338) अध्यापकों का चयन गुच्छ न्यादर्श विधि द्वारा किया गया। प्रस्तुत शोध अध्ययन के लिये उद्देश्यों के आधार पर निम्नलिखित उपकरणों का निर्माण शोधकर्त्ता द्वारा किया गया है– गुणवत्ता उन्नयन पर्यवेक्षण प्रश्नावली (शिक्षा अधिकारियों के लिए) पर्यवेक्षण प्रभावशीलता जाँच सूची (विद्यालयों के लिए) शिक्षक दृष्टिकोण मापनी (अध्यापकों के लिए)

इस शोध अध्ययन में प्रतिशत विश्लेषण, काई वर्ग परीक्षण, मध्यमान, मानक विचलन, टी–अनुपात का प्रयोग किया गया।

मुख्य निष्कर्ष :

- जहाँ 50% बेसिक शिक्षाधिकारी लगभग प्रतिमाह 2 से अधिक तथा प्रतिवर्ष 20 से अधिक विद्यालयों का पर्यवेक्षण करते है, वहीं 68.33% खण्ड शिक्षा अधिकारी प्रति माह 10 से अधिक विद्यालयों का तथा प्रति वर्ष लगभग 120 विद्यालयों का पर्यवेक्षण करते हैं।

- 100% बेसिक शिक्षा अधिकारियों तथा खण्ड शिक्षा अधिकारियों के अधिकार क्षेत्र के अन्तर्गत आने वाले समस्त विद्यालयों के स्वयं के भवन पाये गये।

- जहाँ 67% बेसिक शिक्षा अधिकारियों के अनुसार अपेक्षित शिक्षक–विद्यार्थी अनुपात 1:40 का होना चाहिए, वहीं 68.33% खण्ड शिक्षा अधिकारियों के अनुसार अपेक्षित शिक्षक विद्यार्थी अनुपात 1:30 का होना चाहिए।

- 95.46% शिक्षाधिकारी दैनिक कार्यो के साथ पर्यवेक्षण का समयबद्ध नियोजन कठिनाईपूर्वक कर पाते है।

- 96.63% शिक्षाधिकारी प्रत्येक विद्यालय का नियमित अन्तराल पर पर्यवेक्षण सुनिश्चित नहीं कर पाते है।

- 100% शिक्षाधिकारी शिक्षकों को क्रियात्मक अनुसंधान हेतु प्रोत्साहित कर लेते है।

- 95.45% शिक्षाधिकारियों को मध्यान्ह भोजन की गुणवत्ता की जाँच करने में कोई कठिनाई नहीं होती है।

- नियमित पर्यवेक्षण वाले विद्यालयों में अभिलेखीय संरक्षण के विभिन्न आयाम यथा अध्यापक उपस्थिति पंजी, लाग बुक पंजी, प्रवेश पंजी, निरीक्षण पंजी, स्टाक पंजी, निःशुल्क ड्रेस पंजी, छात्रवृत्ति पंजी, निःशुल्क पुस्तक पंजी एवं पी0टी0ए0 पंजी की स्थिति अनियमित पर्यवेक्षण वाले विद्यालयों की अपेक्षा उच्च कोटि की पायी गयी, जबकि अभिलेखीय संरक्षण के निम्नलिखित आयामों यथा छात्र उपस्थिति पंजी, परीक्षाफल पंजी, तथा ग्राम शिक्षा समिति पंजी की स्थिति नियमित तथा अनियमित पर्यवेक्षण वाले विद्यालयों में एक जैसी पायी गयी।

- नियमित पर्यवेक्षण वाले विद्यालयों में प्रोत्साहन योजना के विभिन्न आयामों यथा निःशुल्क पुस्तक वितरण, निःशुल्क ड्रेस वितरण तथा छात्रवृत्ति वितरण

की स्थिति अनियमित पर्यवेक्षण वाले विद्यालयों की अपेक्षा उच्च कोटि की पायी गयी।

- श्रेणी (क) तथा श्रेणी (घ) गुणवत्ता स्तर वाले विद्यालयों में कार्यरत अध्यापकों का पर्यवेक्षण के प्रति दृष्टिकोण में कोई सार्थक अन्तर नहीं पाया गया, जिससे स्पष्ट होता है कि विभिन्न गुणवत्ता स्तर वाले विद्यालयों में कार्यरत अध्यापकों का पर्यवेक्षण के प्रति दृष्टिकोण समान है।

स्नातक स्तर के विद्यार्थियों की गणित में उपलब्धि पर सृजनषीलता, समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विशय में रुचि के प्रभाव का अध्ययन

रामधनी सिंह

उद्देश्य :

1. स्नातक स्तर के विद्यार्थियों की गणित में उपलब्धि पर सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विषय में रुचि के मध्य सम्बन्ध का अध्ययन करना।
2. विभिन्न स्तर (उच्च, मध्य और निम्न) के सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विषय में रुचि वाले विद्यार्थियों की गणित में उपलब्धि की तुलना करना।
3. विद्यार्थियों की गणित में उपलब्धि में शाब्दिक सृजनशीलता, आकृत्यात्मक सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता एवं गणित विषय में रुचि के योगदान का अध्ययन करना।

शोध प्रविधि : प्रस्तुत शोध समस्या की प्रकृति वर्णनात्मक है तथा 'सर्वेक्षण विधि' प्रयुक्त किया गया है। आश्रित चर–गणित में उपलब्धि एवं स्वतंत्र चर–सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विषय में रुचि है। प्रस्तुत शोध अध्ययन में समष्टि के रुप में उत्तर प्रदेश के केन्द्रीय एवं राज्य विश्वविद्यालयों के स्नातक स्तर के गणित पढ़ने वाले केवल विज्ञान वर्ग के विद्यार्थी हैं। न्यादर्श का चयन 'बहुस्तरीय यादृच्छिक न्यादर्श चयन विधि' प्रयोग करते हुए कुल 560 विद्यार्थी (280 छात्र एवं 280 छात्रा) का चयन किया गया। प्रस्तुत शोध में उपकरण के रुप में शोधकर्ता द्वारा मानकीकृत गणित उपलब्धि परीक्षण के0 एस0 मिश्र द्वारा निर्मित सृजनात्मक चिन्तन परीक्षण रुपरेखा गर्ग द्वारा निर्मित समस्या–समाधान योग्यता परीक्षण तथा डी0 आर0 सिंह द्वारा निर्मित आंकिक योग्यता परीक्षण प्रस्तुत शोध अध्ययन में शोधकर्ता ने समंको का अर्थापन करने हेतु मध्यमान, प्रामाणिक विचलन, सहसम्बन्ध गुणांक (गुणनफल–आघूर्ण सहसम्बंध) एनोवा (एफ–अनुपात) तथा बहु प्रतीपगमन समीकरण सांख्यिकी विधियों का प्रयोग किया है।

मुख्य निष्कर्ष :

- स्नातक स्तर के विद्यार्थियों (छात्रा, ग्रामीण तथा शहरी) की गणित में उपलब्धि तथा शाब्दिक सृजनशीलता एवं आकृत्यात्मक सृजनशीलता के मध्य सार्थक सहसम्बन्ध नहीं है, जबकि छात्रों में है।

- विद्यार्थियों की गणित में उपलब्धि पर समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विषय में रुचि के मध्य सार्थक सहसम्बन्ध है, जबकि शहरी विद्यार्थियों की गणित में उपलब्धि तथा गणित विषय में रुचि के मध्य सार्थक सहसम्बन्ध नहीं है।

- विभिन्न स्तर (उच्च, मध्य और निम्न) के सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता तथा गणित विषय में रुचि वाले विद्यार्थियों की गणित में उपलब्धि में सार्थक अन्तर नहीं है, जबकि शहरी विद्यार्थियों में सार्थक अन्तर है।

- स्नातक स्तर के विद्यार्थियों की गणित में उपलब्धि में शाब्दिक सृजनशीलता, आकृत्यात्मक सृजनशीलता, समस्या–समाधान योग्यता, आंकिक योग्यता एवं गणित विषय में रुचि सार्थक योगदान देते हैं जिसमें विद्यार्थियों की गणित में उपलब्धि में क्रमशः आंकिक योग्यता, शाब्दिक सृजनशीलता एवं समस्या–समाधान योग्यता सर्वोत्तम पूर्वकथक चर तथा गणित विषय में रुचि एवं आकृत्यात्मक सृजनशीलता अवशिष्ट चर के रूप में सम्मिलित हैं।

Department of Education

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