ISSN 2320-7612

EDUCATIONAL EXTRACTS

RNI Reg. No. KERENG 2013/48939
Annual Subscription: Rs. 400/-

Vol. 1
Issue 1
January 2013

CONTENTS:

St. Thomas College of Teacher Education, Pala, Kottayam, Kerala – 686 575
Web site: www.stce-pala.info
E-mail: educationalextracts@gmail.com Phone & Fax: 04822 216537

ISSN 2320-7612

EDUCATIONAL EXTRACTS

Vol. 1 Issue 1 January 2013

A Peer Reviewed Educational Journal of
St. Thomas College of Teacher Education, Pala
Kerala – 686 575

EDUCATIONAL EXTRACTS

Vol. 1 Issue 1 January 2013

A Bi-annual Peer Reviewed Educational Journal

St. Thomas College of Teacher Education, Pala, Kerala – 686 575
Re-accredited with A+ Grade by NAAC

Website: www.stce-pala.info
Email: stcepala@gmail.com, educationalextracts@gmail.com

Statement showing ownership and other particulars about
EDUCATIONAL EXTRACTS

Place of Publication	:	St. Thomas College of Teacher Education, Pala, Kottayam
Periodicity of Publication	:	Half Yearly
Managing Editor	:	Prof. Jose P. Mattam
Chief Editor	:	Dr. T. C. Thankachan
Printer & Publisher	:	Prof. Jose P. Mattam, Principal, St. Thomas College of Teacher Education, Pala, Kottayam
Nationality	:	Indian
Address & Ownership	:	Prof. Jose P. Mattam, Principal, St. Thomas College of Teacher Education, Pala, Kottayam
Printed at	:	St. Thomas Offset Printers, Pala, Kottayam, Kerala

I, Prof. Jose P. Mattam, Principal, St. Thomas College of Teacher Education, Pala, Kerala, do hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-

Prof. Jose P. Mattam
Managing Editor & Publisher,
Educational Extracts

EDITORIAL

St. Thomas College of Teacher Education, Pala was established in the year 1957 as one of the pioneer institutions in the field of teacher education. We consider this as an exciting and challenging point in the history of this institution when we are fulfilling our long cherished dream, publishing a journal of this kind.

In confronting the many challenges that the future holds in store, humankind sees in education an indispensable asset in its attempt to attain ideals of peace, freedom and social justice. Quality is the watchword that is emphasized in educational institutions and society across the nations. Traditional curriculum is not enough, schools must provide students with a broader set of 21st century skills to thrive in a rapidly evolving technology saturated world. The non-cognitive attributes should be given more importance in education. Individuals increasingly shoulder a greater burden of risk and responsibility for their personal well being. So, students will need to be able to use what they learn in school to understand critical information in order to make sound decisions that ensure their well being. To improve the quality of teaching and learning we need lot of research work.

Educational Extracts seeks to bridge and integrate varied issues in education and to encourage healthy dialogue between researchers and practitioners. It provides a platform to publish theoretical papers, philosophical arguments, research findings, innovative practices, authoritative overview articles, analysis of educational problems, issues and comparative studies and book reviews. It is our honour and privilege to make your work known by our distinguished readership. Please consider submitting your best work to *Educational Extracts.*

We are extremely happy to publish the first issue of this peer reviewed journal. This issue contains ten articles by educationists and researchers. The editorial board sincerely appreciates the contributors of this first issue. We look forward for creative suggestions and constructive criticisms. Welcome to interact with the editorial board by e-mail: educationalextracts@gmail.com.

Chief Editor

CONTENTS

Educational Extracts
Vol. I Issue I January 2013
pp. 5-18

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

ORGANIZATIONAL STRUCTURE AND CLIMATE AS A SOURCE OF STRESS AMONG TEACHERS

Dr. R. Vijaya Anuradha*
Prof. (Dr.) G. Lokanadha Reddy**

Abstract

Apart from many sources of stress, organizational structure and climate is viewed as the main stress causing factor for the teachers. Stressors may be physical or psychological in origin and both can affect physical and psychological health, and may interact with each other. Often, one's role in the organization and the ambiguity associated with the job resulting from inadequate information concerning expectations, authority and responsibilities to perform one's role as well as the conflict that arises from the demands placed on the teachers by superiors, colleagues and students could also result in stress. Some of the preventions of stress through organizational interventions at the management level are, selection of suitably qualified teachers, proper job designing and training, adequate work conditions, effective supervision and incentive system, effective communication system, participative management and so on. Some of the measures which could prove beneficial to teachers in coping with stress are- improving self esteem, building self confidence, working on building emotional intelligence competencies, cognitive behavioural techniques, assertiveness training, relaxation training, practicing yoga and meditation, exercising regularly, developing effective communication skills, engaging in creative activities and so on.

Key Words: *Organizational structure, Occupational stress, Role ambiguity, Role conflict, Role overload, Role under-load, etc.*

Introduction

The teachers' of today are undergoing tremendous pressure in their professional life. Stress at work resulting from increasing complexities of work and its divergent demand, has become a prominent and pervading feature of the modern organizations. Despite tremendous advancements in science and technology, and remarkable growth of economy and sources of luxury, majority of people all over the world seem to be experiencing moderate to high degree of psychological stress in various spheres of their lives. The physiologist, Walter Cannon (1914), in his work on homeostasis had used the term stress

* *Post Doctoral Fellow, School of Education and HRD, Dravidian University, Kuppam – 517426*
** *Professor and Head, School of Education and HRD, Dravidian University, Kuppam – 517426*
E.mail: reddyloka1958@yahoo.co.in

to describe emotional states that had possible detrimental physical impact on the focal organism. Dunbar (1947) had described the term stress as quality of stimulus while some others defined it as the quality of both stimulus and the response. According to Lazarus (1966), stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize. In fact, stress has been widely described as a person- environment relationship (Folkman, 1984; Quick et.al., 1986; Baron and Byrne, 1997). Stress involves a stressor and a stress response. A stressor may be a physical insult, such as trauma or physical exertion, particularly when the body is being forced to operate beyond its capacity. Stressors also include primarily psychological experiences such as time-pressured tasks, interpersonal conflict, unexpected events, frustration, isolation, and traumatic life events and all of these types of stressors may produce behavioural responses and evoke physiological consequences such as increased blood pressure, elevated heart rate, and impaired cognitive function.

The researchers in the area of organizational psychology and management have used the term job stress to denote employees' mental state aroused by a job situation or a combination of job situations perceived as presenting excessive and divergent demands. Caplan et al. (1975) have accordingly defined occupational stress as 'any characteristics of job environment which poses a threat to the individual'. Occupational stress, in particular, is the inability to cope with the pressures in a job and a poor fit between someone's abilities and his/her work requirements and conditions (Rees, 1997). It is a mental and physical condition which affects an individual's productivity, effectiveness, personal health and quality of work (Comish and Swindle, 1994). A generic definition of 'job stress' given by *National Institute of Occupational Safety and Health (1999)* is 'harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker'. Teacher stress is a specific type of occupational stress. It is the experience by a teacher of unpleasant emotions such as tension, frustration, anger and depression resulting from aspects of his/her work as a teacher (Kyriacou, 1987).

Occupational stress is related to both external and internal factors. External factors involve the physical environment including one's job, relationships with others, home and all the situations, challenges, difficulties and expectations one is confronted with on a daily basis. It is the internal factors which determine one's ability to respond to and deal with the external stress inducing factors. Nutritional status, overall health and fitness level, emotional well-being and amount of sleep and rest one gets are some of the internal factors which influence one's stress coping ability. While internal symptoms may involve feeling sick, moody or having a headache, external symptoms may include throwing things, screaming, shaking with rage, weeping etc. Stress signals could also be behavioural and physiological. Behavioural signals include bouts of weakness, fainting, losing personal possessions, doing things in a hurried

manner etc. Physiological signs of stress include hypertension, jagged nerves, anxiety backache, intolerance to heat, ulcers etc. These common symptoms of stress affect work output and disrupt the smooth functioning in the workplace (Okorie, 1997). Stressors may be physical or psychological in origin and both can affect physical and psychological health, and may interact with each other. Physical stressors may include biological, biomechanical, chemical and radiological, or psychosocial hazards. Psychosocial hazards are 'those aspects of work design and the organization and management of work, and their social and environmental contexts, which have the potential for causing psychological, social or physical harm'. Chronic stressor, stress or strain refers to an ongoing exposure, condition or reaction respectively. An example of a chronic stressor is workload, and presumably this would be linked with a chronic or long lasting reaction, as the exposure is ongoing. Acute stressor, stress, and strain, refers to a short lived exposure, condition or reaction respectively. An example of an acute stressor would be a violent incident that could lead to an acute response or a chronic response such as Post Traumatic Stress Disorder, depending on its nature.

Among life situations, the workplace stands out as a potentially important source of stress purely because of the amount of time that is spent in this setting (Erkutlu and Chafra, 2006). Over the years, a large number of workplace stressors of varying degrees of gravity have been identified. The common organizational and individual stressors could be classified into five groups: (1) organizational practices (performance reward systems, supervisory practices, promotion opportunities), (2) job/task features (workload, work pace, autonomy), (3) organizational culture/climate (employee value, personal growth, integrity), (4) interpersonal relationships (higher authorities and coworkers), and (5) employee personal characteristics (personality traits, family relationships, coping skills) - Hurrel et al. (1993), as cited by Murphy (1995). Burke (1988) grouped job stressors into the following six categories: physical environment, role stressors, organizational structure and job characteristics, relationships with others, career development, and work-family conflict, while Cooper et al. (1988) identified six sources of stress at work: factors intrinsic to the job, management role, relationship with others, career and achievement, organizational structure and climate, and home/work interface. More simply, Antoniou et al. (2006) point that specific conditions that make jobs stressful can be categorized either as exogenous (i.e. unfavorable occupational conditions, excessive workload, lack of collaboration, etc.) or endogenous pressures (i.e. individual personality characteristics, etc.). When we add the complexity and turbulence of contemporary working environment and organizational life, altogether, causes of occupational stress can be grouped into two main groups: (1) *job related stressors*, with three major subgroups –organization specific, job specific and environment specific stressors and (2) *individual-related stressors,* which can be either a consequence of individual characteristics or a

consequence of individual life circumstances. Here, in the present study, organization specific stressors i.e. organizational structure as a source of stress is dealt in detail.

Job specific stressors must not be seen as a sum of many individual problems, but rather it is an issue to be approached from the perspective of the organization - how jobs and workplaces are designed and the way in which work is organized and managed. It is these organizational obstacles that hinder the teacher in serving their profession with a quality that lives up to the standards set by society, the school and the teacher. Yet defining the problem as 'organizational' clearly makes stress an issue of occupational health and safety, and hence it merits to be treated as such. One can defer from a number of studies that it is neither the personal characteristics of the teacher nor the type of school, but rather the amount of stress present in the job that distinguishes different stress levels. Some of the most influential factors mentioned as causes of job stress are: lack of professional skills; new teaching methods; changes in curriculum and courses; adaptation to changes in information and communication technology; inadequate training and continuing education etc. Although there are variances in impact and job satisfaction, the presence of stress with common causes across countries and school systems, is undeniable.

Organization Specific Stressors*:* According to Cooper and Marshall (1976), stress could be due to factors intrinsic to the job, such as poor physical working conditions, work overload or time pressures. Often, one's role in the organization and the ambiguity associated with the job resulting from inadequate information concerning expectations, authority and responsibilities to perform one's role as well as the conflict that arises from the demands placed on the individual by superiors, peers and subordinates could also result in stress. A third factor is the impact of status incongruence, lack of job security and thwarted ambition on one's career progression. It is theorized that relationships at work with bosses and colleagues, including bullying in the workplace could result in a lot of stress. Reddy (2006)-identified the lack of opportunities for promotion, long hours of school day and lack of preparation time, lack of opportunities for professional growth leading to professional dissatisfaction, negative administrative attitude and bahaviours, lack of recognition from the organization for the job well done, poor communication patterns among school personnel, inadequate salary, job demands and over expectation of the job as some of the organizational stress causing factors. At an organizational level, the structure and climate, including the degree of involvement in decision making and participation in office politics could result in a stressful climate. Inadequate salary for the work done in the school, stringent rules and regulations of the school that hinders to act independently, lack of information in carrying out the professional responsibilities and, inadequate trained human resources to carry out the work assigned are also some of the stressors for teachers (Poornima, 2010, Reddy,2011). Anuradha (2012) identified long working hours and expectations to do more work, large class size with students of diverse needs and, taking responsibilities for

the activities of others, lack of equipments and teaching- learning materials, inadequate supportive staff in the school, lack of involvement in the decision making process of the activities related to the profession and, lack of opportunities for promotion in the school as the main stressors for teachers under organizational structure and climate. Organizational roles encompass the behaviours and demands that are associated with the job an individual performs. The importance of role related stress was first identified by kahn et al. (1964). According to Beehr (1995) and; Robertson, Cooper, and Wiliams (1990), *role ambiguity, role conflict, role-overload and role under-load* are the most widely studied occupational stressors.

Role ambiguity as defined by kahn et al. (1964), refers to unpredictability of the consequences of one's role performance. Later conceptualizations have extended the definition to include a lack of information needed to perform the role, and the typical measure of this construct assesses both unpredictability of consequences and information deficiency regarding expected role behaviour (Pearce, 1981). The role characteristic has been defined as a job situation in which there are inadequate or misleading pieces of information about how an individual is supposed to do the job (Beehr, 1985a). Additionally, role ambiguity is said to result when an individual's role is not clear, including lack of clarity about the objective of a job or the scope of an individual's responsibilities (Ivancevich and Matteson, 1980). The real stress of role ambiguity is experienced when individuals are prevented from being productive and achieving. In addition, stress resulting from role ambiguity is experienced when an individual loses a sense of certainty and predictability in the work role (Schuler, 1984). Beehr (1976) and Schuler (1980) conceptualize role ambiguity as the lack of specificity and predictability concerning an employee's job or role functions and responsibilities. Others (Beehr, 1985; Cooper, 1981; and Terborg, 1985) subsequently added that role ambiguity is an objective situation at work in which there is, insufficient, misleading, or restricted flow of information pertaining to one's work role (Pearce,1981). Role ambiguity is a situation in which there is lack of clearly defined role expectations (Kemery, 1991). Role ambiguity is often perceived when there are changes in technology, social structures, new personnel entering the organization (McGrath, 1976) and changes in jobs or new work place (Cooper et al., 1988; Ivancevich and Matteson, 1980). Therefore, role ambiguity is the lack of clarity about duties, objectives and responsibilities needed to fulfill ones' role-often due to an inadequate understanding of colleagues' work expectations of job behaviors (Cooper, Cooper, and Eaker, 1988a; Peterson et al., 1993).

Role conflict reflects incompatible demands on the person, can reduce negative emotional reactions due to perceived inability to be effective on the job (Schaubroek et al., 1989). Several studies have confirmed this detrimental effect of role conflict on both self reported strain (O'Driscol and Beehr, 1994) and physiological indicators of strain (Kahn and Byosiere, 1990). Quick and Quick (1984) differentiated four kinds of role conflict:

1. Intra-sender role conflict: when a supervisor or manager communicates expectations that are mutually incompatible.
2. Inter-sender role conflict: when two or more people communicate expectations that are incompatible.
3. Person-role conflict: when an individual perceives a conflict between his or her expectations & values and those of the organization or key people in the work environment, and
4. Inter-role conflict: when a person occupies two or more roles may have conflicting expectations or requirements.

Role conflict has been defined as two or more sets of incompatible demands concerning work issues (Bacharach, Bamberger, and Conley, 1990; Beehr, 1995; Kahn et al., 1964; Katz and Kahn, 1978; Kemery, 1991). Specifically, incompatible demands may be between the expectations placed on an individual by concerned parties or by the interface between two or more roles of the same person (Cooper et al., 1988; Peterson et al., 1995). Rizzo et al. (1970) maintain that role conflict also exists when organizational requirements clash with personal values and obligations to others. They express role conflict as feelings torn by pressures; i.e. differing expectations placed on the individual cause the individual to feel divided in having to choose between, or to deal with, the varying demands or expectations. A commonly studied type of inter-role conflict deals with work and family roles. Gupta and Jenkins (1985) wrote that people in such relationships can experience many types of conflicts, depending on whether the conflicts are with one's spouse, one's work role, or between the two. When family problems spillover to one's work domain, there are work role related problems, including withdrawal behaviours and poor performance (Frone, 2003).

Role overload refers to the number of different roles a person has to fulfill and that occurs when an individual is not able to complete the work that is part of a particular job (Ross and Altmaier, 1994). Not only can role overload lead to excessive demands on an individual's time, but it also may create uncertainty about his or her ability to perform these roles adequately. An individual in a group might malfunction where there is too much work to be done. Along with role ambiguity and role conflict, role overload has been found to be a major correlate of job related stress (Cooper, 1981). In fact, Narayanan et al. (1999) found that work overload was mentioned more frequently by respondents as a source of stress than either role ambiguity or role conflict. Role overload is considered to be caused by too much work, time pressures and deadlines (Sofer, 1970), and lack of personal resources needed to fulfill duties, commitments, and responsibilities (Peterson et al., 1995). Role overload is usually defined as the inability to fulfill organizational expectations in the time available (Kahn, 1980).

Role under-load is the other role characteristic related to being stressed in a particular job occurs when a person's skills are underutilized. The resulting stress is

called role under-load. While role overload represents a demand, role under-load is characterized by constraint. Role under load is said to be present when employees have too much ability for the job they hold. As early as 1911, in his discussion of scientific management, Taylor (1911) noted that the negative effects that can arise when an individual is over skilled for a job.

The school is also viewed as a stressful working environment both physically and psychologically. Lack of financial resources for sufficient materials, class rooms and equipment, environmental noise, poor ventilation, and problems with hygiene and safety are just some of the bad working conditions. These are coupled with a lack of time and unrealistic workload, excessive paperwork and administrative duties, lack of personnel allocation, and a strong administrative hierarchy with a lack of support. A combination of these factors places the environment in a position of low morale and lack of solidarity, and often the teacher experiences enormous isolation, being alone against their class. This causes a great deal of stress because these feelings clash with the teacher's personal ambitions and goals for fulfilling their job and providing a quality education, and the educator is left at a loss. The role of administration is crucial in handling these risks, and it must aim to balance the organization of work, human resources management, employee supervision and job performance evaluation.

Although the students were not noted as the main source of stress, it is rather that the organizational structure has not determined how to empower teachers to best deal with specific student issues. They are not always equipped with proper means to handle the increase in violence and aggression; the lack of attention, interest and motivation; disciplinary problems; drugs and; an expanding class size per teacher. These challenges are only worsened by increasing poor parent - teacher relations and decreased parent participation. The teacher experiences greater pressure from parents and society as a whole to play a larger role in the upbringing of a child - not only concerning ethical issues but also providing assistance and counseling for issues such as poor academic performance, increasing indiscipline, suicide, etc. The responsibility for students' overall welfare and well-being is a strain resulting in stress for teachers. It was also noted that women are often more susceptible to work-related stress due to a number of other outside pressures, such as having the same type of emotional and psychological responsibilities at home and at work, for her family and her students.

The quality of relationships that individuals have at work has consistently been linked to job stress (Payne, 1980). Poor co-worker relationships are associated with low trust, low supportiveness and low interest / willingness to listen and be emphatic (French and Caplan, 1973). Conversely, those individuals who report the greatest amount of group cohesion are best able to cope with stress on job (Ketz de Vries, 1984). It is apparent that the majority of causes are related to how work is organized, and following that are societal and personal pressures related to the teaching profession. With regard to professional development, there is a lack of training and continuing education available to keep up

with the changes in teaching methods, curriculum, and aid materials. Furthermore, education policy reform and political restructuring tend to bring a heavy burden upon teachers, not only relating to the implementation of changes but also in terms of job security. Teachers are not remunerated according to the same salary scale as a majority of other professions, and this weighs heavily upon them financially and sends a message that their work is not highly valued.

Consequences of Occupational Stress

At a general level, there has been a great deal of investigation of the association between the various sources of occupational stress and the resulting manifestations of stress. Stress produces a range of undesirable, expensive, and debilitating consequences, which affect both individuals and organizations. In organizational setting, stress is nowadays becoming a major contributor to health and performance problems of individuals, and unwanted occurrences and costs for organizations. Consequences of occupational stress can be grouped into those on individual and those on organizational level. On the individual level, there are three main subgroups of stress (Cooper and Payne, 1990);

1) ***Unwanted feelings and behaviours*** – such as job dissatisfaction, lower motivation, low employee morale, less organizational commitment, lowered overall quality of work life, absenteeism, turnover to other jobs, intention to leave the job, lower productivity, decreased quantity and quality of work, inability to make sound decisions, sabotage and work stoppage, occupational burnout, alienation, and increased smoking and alcohol intake.

2) ***Physiological diseases (poor physical health)*** – such as increased blood pressure and pulse rate, cardiovascular diseases, high cholesterol, high blood sugar, insomnia, headaches, infections, skin problems, suppressed immune system, injuries, and fatigue. It also leads to psychosomatic illness and depleted energy reserves (Milstein and Golaszewski, 1985).

3) ***Psychological diseases (poor emotional /mental health)*** – psychological distress includes depression, anxiousness, passiveness/aggressiveness, boredom, loss of self-confidence and self-esteem, loss of concentration, feelings of futility, impulsiveness and disregarding of social norms and values, dissatisfaction with job and life, losing of contact with reality, and emotional fatigue. Fimian and Santoro (1981), claim that, emotional manifestations are often precursors for behavioural and physiological manifestations of stress in teachers, and so these should never be seen as discrete in nature.

On the organizational level, consequences of occupational stress can be grouped as - discontent and poor morale among the workforce, poor performance, poor relationships with students and co-workers, loss of valuable staff, increased sick-leave, permanent vacancies, premature retirement, diminished cooperation, poor internal communications, more internal conflicts, and dysfunctional workplace climate. As it is evident, consequences of occupational stress, both on individual and organizational level can be associated with both pleasant and unpleasant events, and

only becomes problematic when it remains unresolved (Erkutlu and Chafra, 2006). In other words, one could argue that not all stress is dysfunctional and that, in fact, stress is not inherently bad, while a limited amount of stress combined with appropriate responses actually can benefit both the individual and the organization. Namely, as low and high stress predict poor performance, and moderate stress predicts maximum performance (Yerkes and Dodson, 1908 in Sharpley et al., 1996), the total elimination of stress should not be aimed at. The ways in which stress manifests itself are generally referred to in terms of *behavioural, physical or psychological* outcomes. Overall, teachers manifesting high levels of stress also show signs of high levels of psychological distress, usually demonstrated by high anxiety and low psychological well-being, as well as decreased job satisfaction i.e. *mental ill-health, burnout and job dissatisfaction* among the teachers (Traverse and Cooper, 1996).

Stress is a major risk factor in the physical and mental health of a teacher, and the effects may be both short and long term. Many surveys have concluded that work-related pressure has dramatically increased for teachers in the 1990s. It is important that, teachers understand, in education, there is a profound need for restoration, relaxation and rejuvenation, and they should be allowed these things without feeling guilty. Besides from feeling a lack of support for their job, most teachers feel that their employers also fail to look after their health and safety. However, one of the greatest risks of stress is the decrease in the quality of education and the reduction in teacher effectiveness. The combination of all of these elements means that the overall quality of education provided by the institutions also suffers. The ramifications of stress for the entire organization can be widespread. An organization affected by stress may display some of the symptoms such as: high levels of sickness and absenteeism, frequent and severe accidents, dysfunctional personal relationships, apathy among the workforce, poor quality and low levels of performance.

Strategies to Combat Stress at Work place

Stress intervention programmes should be tackled from different levels due to the complex nature of people and problems. Both the organization and the individual have a responsibility to actively manage the stress in order to eliminate the stressor or reduce its effects. Primary intervention at the organizational level and secondary intervention at the individual level are essentially appropriate preventive actions to try to eliminate or reduce problems that may cause stress. In the tertiary intervention level, it is a remedial action for those who may already be affected and addresses methods of treating or reducing the stress.

The focus of primary interventions is on modifying or adapting the physical, structural or socio-political environment of the organization to meet the needs of the teachers. Stresses of job life can be conveniently managed, to a large extent, at different stages through various institutional interventions such as- prevention of stress through organizational interventions at the management level, like, selection of suitably qualified teachers, proper job designing and

training, adequate work conditions, effective supervision and incentive system, effective communication system, participative management, minimizing the frequency and intensity of stressful situations integral to the job at the organizational level and, moderating the intensity of integral job stressors and their consequent strains through the effect of other variables of positive values, such as high or extra salary, non-financial incentives, social support, generating team feeling, participative decision making, etc. Some other interventions at the organizational level to reduce stress of teachers are restructuring of organizational units, changes in decision making processes such as, increased teacher participation in relevant decisions, redesign of job tasks such as, increasing employee autonomy and control over job functions and work schedules, redesign of the physical work environment and so on. Also, it is the responsibility of the organization to see that, teachers are not forced to involve themselves in other activities apart from teaching such as census work, pulse polio programme, election duties etc. so as to enable them to concentrate more on their teaching and reducing their work overload.

Coming to the secondary interventions, there are few key skills that a teacher needs to master in order to manage stress at work such as- r**ealizing when a person is stressed,** recognizing one's particular stress response, and become familiar with sensual cues that can rapidly calm and energize and, s**tay connected to one's internal emotional experience** so that, one can appropriately manage one's own emotions. Job stress has multiple causes, and so has to have multiple solutions. A well designed stress reduction program addresses both the individual as well as organizational levels. Some of the measures which could prove beneficial to teachers in coping with stress are- improving self esteem, building self confidence, working on building emotional intelligence competencies, cognitive behavioural techniques, assertiveness training, relaxation training, practicing yoga and meditation, exercising regularly, developing effective communication skills, engaging in creative activities and so on.

Cognitive approaches to stress management derive from the individual's interpretation of events or situations which have been labeled stressful, the individual's anticipation of the consequences of the stressor and the individual's view of his or her ability to cope with the stressor or the stress reaction are fundamental in the stress process. Yoga involves a series of both moving and stationary poses, combined with deep breathing. By reducing anxiety and stress, yoga can also improve flexibility, strength, balance, and stamina. Practiced regularly, it can also strengthen the relaxation response in daily life. Although almost all yoga classes end in a relaxation pose, classes that emphasize slow, steady movement, deep breathing, and gentle stretching are best for stress relief. **Satyananda** is a traditional form of yoga. It features gentle poses, deep relaxation, and meditation, making it suitable for beginners as well as anyone primarily looking for stress reduction. **Hatha yoga** is also reasonably

gentle way to relieve stress and is suitable for beginners. **Power yoga**, with its intense poses and focus on fitness, is better suited to those looking for stimulation as well as relaxation. Rhythmic exercise—such as running, walking, rowing, or cycling—is most effective at relieving stress when performed with relaxation in mind. Deep breathing is a simple, yet powerful, relaxation technique. It's easy to learn, can be practiced almost anywhere, and provides a quick way to get one's stress levels in check. Deep breathing is the cornerstone of many other relaxation practices, too, and can be combined with other relaxing elements such as aromatherapy and music.

References

Antoniou, A.S., Polychroni, F. and Vlachakis, A.N. (2006) 'Gender and age differences in occupational stress and professional burnout between primary and high school teachers in Greece', *Journal of Managerial Psychology*', 21 (7), Pp. 682-690.Antoniou et al. (2006

Anuradha, R.V. (2012) '*Emotional Intelligence, Occupational Stress and Job Performance of Teachers Working at Higher Secondary Teachers*' Ph.D. Thesis, Department of Education, Dravidian University, Kuppam

Bacharach, S.B., Bamberger, P. and Conley, S. (1990) 'Work processes, role conflict, and role overload: The case of nurses and engineers in the public sector', *Work and Occupations*, 17, Pp. 199-228.

Baron, A.R. and Byrne, D. (1997) *Social Psychology*, MA, Allyn and Bacon: Boston.

Beehr, T.A. (1976) 'Perceived situational moderators of the relationship between subjective role ambiguity and role strain', *Journal of Applied Psychology*, 61, Pp. 35-40.

Beehr, T.A. (1985) *The role of social support in coping with organizational stress*, in T.A. Beehr and R.S. Bhagat (eds.), Human stress and cognition in organizations (Pp. 375-398), John Wiley: New York.

Beehr, T.A. (1985a) *Organizational stress and employee effectiveness: A job characteristics approach*, in T.A. Beehr and R.S. Bhagat (eds.), Human stress and cognition in organizations, John Wiley: New York.

Beehr, T.A. (1995) *Psychological stress in the workplace*, Routledge and kegan Paul: London.

Burke, R. (1988) 'Type A behavior, occupational and life demands, satisfaction and well-being', *Psychological Reports*, 63, Pp. 451-458.

Cannon, W. (1914) 'The interrelations of emotions as suggested by recent physiological researches', *American Journal of Psychology*, 25, Pp. 256-282.

Caplan, R.D., Cobb, S. and French, J.R.P. (1975) 'Relationships of cessation of smoking with job stress, personality, and social support', *Journal of Applied Psychology*, 60, Pp. 211-219.

Comish, R. and Swindle, B. (1994) 'Managing stress in the workplace', *National Public Accountant*, 39 (2), Pp. 24-28.

Cooper, C.L. (1981) *The stress check*, Prentice Hall: Englewood Cliffs, NJ.

Cooper, C.L. and Marshall, J. (1976) 'Occupational sources of stress: A review of the literature relating to coronary heart disease and mental ill health', *Journal of Occupational Psychology*, 49 (1), P. 12.

Cooper, C.L. and Payne, R. (eds.) (1990) *Causes, coping and consequences of stress at work*, Wiley: Chichester, New York.

Cooper, C.L., Sloan, S.J. and Williams, S. (1988) *Occupational stress indicator management guide*, NFER-Nelson: Windsor.

Cooper, C.L., Cooper, R.D. and Eaker, L.H. (1988a) *Living with stress*, Penguin Health: London.

Dunbar, H.F. (1947) *Mind and Body*, Random House: New York.

Erkutlu, H.V. and Chafra, J. (2006) 'Relationship between leadership power bases and job stress of subordinates: Example from boutique hotels', *Management Research News*, 29 (5), Pp.285 – 297.

Fimian, M.J. and Santoro, T.M. (1981) 'Correlates of occupational stress as reported by full-time special education teachers, I. Sources of stress, II. Manifestations of stress', *Educational Information Research Centre,* 1, Pp. 219-543.

Folkman, S. (1984) 'Personal control and stress and coping process: A theoretical analysis', *Journal of Personality and Social Psychology*, 46, Pp. 839-852.

French, J.R.P. and Caplan, R.D. (1973) *Organizational stress and individual strain*, in A.J. Marrow (ed.), The failure of success, John-Wiley: New York.

Frone, M.R. (2003) *Work family balance*, in J.C. Quick and L.E. Tetrick (eds.), Handbook of health psychology (Pp. 143-162), American Psychological Association: Washington DC.

Gupta, N. and Jenkins, D.G. (1985) *Dual career couples: Stress, stressors, strains and strategies*, in T.A. Beehr and R.S. Bhagat (eds.), Human stress and cognition in organizations (Pp. 141-176), John Wiley: New York.

Hurrel, J.J., Jr, Nelson, D.L. and Simmons , B.L. (1993) 'Measuring job stressors and strains: where we have been, where we are, and where we need to go', *Journal od Occupational Health Psychology*, 3, Pp. 368-389.

Ivancevich, J.M. and Matteson, M.T. (1980) *Stress and work: A managerial perspective*, Scott Foresman: Glenview, IL.

Kahn, R. (1980) *Conflict, ambiguity and overload: Three elements in job stress*, in D. Katz, R. Kahn, J. Adams (eds.), The study of organizations (Pp. 418-28), Jossey-Bass: San Francisco, CA.

Kahn, R.L. and Byosiere, P. (1990) *Stress in organizations*, in M.D. Dunnette and L.M. Hough (eds.), Handbook of industrial and organizational psychology (2nd ed., Pp. 571-650), Consulting Psychologists Press: Palo Alto, CA.

Kahn, R., Wolffe, D., Quinn, R. and Snoek, J. (1964) *Organizational stress: Studies in role conflict and ambiguity* (eds.), John Wiley: New York.

Katz, D. and Kahn, R.L. (1978) *The social psychology of organizations* (2nd ed.), John Wiley: New York.

Kemery, E.R. (1991) *Affective disposition, role stress and job withdrawal*, in P.L. Perrewe (ed.), Handbook of job stress, Special issue, *Journal of Behaviour and Personality*, 6, Pp. 183-195.

Ketz de Vries, M.F.R. (1984) *Organizational stress management audit*, in A.S. Sethi and R.S. Schuler (eds.), Handbook of organizational stress coping strategies, Ballinger: Cambridge, MA.

Kyriacou, C. (1987) 'Teacher stress and burnout: An international review', *Educational Research,* 29 (2), Pp. 146-152.

Lazarus, R.S. (1966) *Psychological Stress and the Coping Process*, McGraw-Hill: New York.

McGrath, J.E. (1976) *Stress and behaviour in organizations*, in M.D. Dunnette (ed.), 1976 handbook of industrial and organizational psychology, Consulting Psychologists Press: Palo Alto, CA.

Milstein, M.M. and Golaszewski, T.J. (1985) 'Effects of organizationally-based and individually-based stress management efforts in elementary school settings', *Urban Education*, 19 (4), Pp. 389-409.

Murphy, K.R. (1995) 'Is the relationship between cognitive ability and job performance stable over time?', *Human Performance*, 2, Pp. 183-200.

Narayanan, l., Menon, S. and Spector, P. (1999) 'Stress in the workplace: A comparison of gender and occupation', *Journal of Organizational Behaviour*, 20, Pp. 63-74.

National Institute for Occupational Safety and Health-NIOSH (1999) *Stress at work*, Cincinnati, OH: Publication No. 99-101, US Dept. of Health and Human Services.

O' Driscoll, M.P. and Beehr, T.A. (1994) 'Supervisor behaviours, role stressors and uncertainity as predictors of personal outcomes for subordinates', *Journal of Organizational Behaviour*, 15, Pp. 145-155.

Okorie, A.N. (1997) 'Signals, sources and management of stress among educators and school administrators in Nigeria', *International Journal of Educational Management,* 2 (1), Pp. 1-8.

Payne, R. (1980) *Organizational stress and support*, in C.L. Cooper and R. Payne (eds.), Current concers in occupational stress, John Wiley: New York.

Pearce, J. (1981) 'Bringing some clarity to role ambiguity research', *Academy of Management Review*, 6, Pp. 665-674.

Peterson, C., Maiser, S. and Seligman, M.E.P. (1993) *Learned helplessness*, Oxford University Press: New York.

Peterson, M.F., Smith, P.B. Akande, A., Ayestaran, S., Bochner, S. and Callan, V. (1995) 'Role conflict, ambiguity and overload: A 21 nation study', *Academy of Management Journal*, 38, Pp. 429-452.

Poornima, R. (2010) '*Emotional Intelligence, occupational stress and job satisfaction of special education teachers*', Ph.D. Thesis, Dept. of Education, Dravidian University, Kuppam.

Quick, J.C. and Quick, J.D. (1984) O*rganizational stress and preventive management*, McGraw-Hill: New York.

Quick, J.C., Sekade, L. and Eakin, M.E. (1986) 'Thinking styles and job stress', *Personnel*, 40, Pp. 44-48.

Reddy, G.L. (2006) '*Occupational stress, professional burnout and job satisfaction among special education teachers in South India'*, Major Research Project Report submitted to the Ministry of Social Justice and Empowerment, Govt. of India, New Delhi.

Reddy, G.L. (2011) *Occupational stress, professional burnout and job satisfaction of university teachers in South India,* UGC Major Research Project, Dept. of Education, Dravidian University, Kuppam.

Rees, K. (1997) '*Journey of discovery: A longitudinal study of learning during a graduate professional programme*', Ph.D. Thesis, Case Western Reserve University, Cleveland.

Rizzo, J.R. House, R.J. and Lirtzman, S.I. (1970) 'Role conflict and ambiguity in complex organizations', *Administrative Science Quarterly*, 15, Pp. 150-163.

Robertson, I.T., Cooper, C.L. and Williams, J. (1990) 'The validity of the occupational stress indicator', *Work and Stress*, 4, Pp. 29-39.

Ross, R.R. and Altmair, E.M. (1994) *Interventions in occupational stress*, Sage Publications: New York.

Schaubroeck, J., Cotton, J. and Jennings, K. (1989) 'Antecedents and consequences of role stress: A covariance structure analyses, *Journal of Organizational Behaviour*, 10, Pp. 35-58.

Schuler, R.S. (1980) 'Definition and conceptualization of stress in organizations', *Organizational Behaviour and Human Performance,* 25, Pp. 184-215.

Schuler, R.S. (1984) *Organizational stress and coping: A model and review*, in A.S. Sethi and R.S. Schuler (eds.), Handbook of organizational stress coping strategies, Ballinger: Cambridge, MA.

Sharpley, C.F., Reynolds, R., Acosta, A. and Dua, J.K. (1996) 'The presence, nature and effects of job stress on physical and psychological health at a large Australian University', *Journal of Educational Administration*, 34 (4), Pp. 73-86.

Sofer, C. (1970) *Men in mid career,* Cambridge University Press: London.

Taylor, F.W. (1911) *Principles of scientific management*, Harper and Row: New York.

Terborg, J.R. (1985) *Working women and stress*, in T.A. Beehr and R.S. Bhagat (eds.), Human stress and cognition in organizations, John Wiley: New York.

Traverse, C.J. and Cooper, C.L. (1996) *Teachers under pressure: Stress in the teaching profession*, Routledge: London.

Traverse, C.J. and Cooper, C.L. (1993) 'Mental health, job satisfaction and occupational stress among UK teachers', *Work and Stress*, 7 (3), Pp. 203-219.

Yerks, R. and Dodson, J.D. (1908) 'The relationship of stimulus to rapidity of habit formation', *Journal of Comparative Neurological Psychology*, 18, Pp. 459-72.

Educational Extracts
Vol. I Issue I January 2013
pp. 19-27

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

CHALLENGES IN IMPLEMENTING PERFORMANCE-BASED ASSESSMENT OF ENGLISH AT SECONDARY SCHOOL LEVEL

Dr. Jaya Jaise*

Abstract

The curriculum of English at the Secondary level is the continuation of the process of reformation at primary level and underscores the acquisition of language abilities through the essentials of English. In the era of these modern advancements, the learners should not be underestimated by assessing them in terms of the marks they score in written examinations alone. In Kerala, Projects, Assignments, Practicals, Collections, and Class Tests, Seminars, Records are employed for conducting Performance-based Assessment of English. It was hypothesised that Secondary School Teachers of Kerala face Challenges in implementing Performance-based Assessment of English. The major objectives of the study are to expose the challenges, if any, encountered by Secondary School Teachers of Kerala in the implementation of Performance-based Assessment of English and to gather suggestions for their alleviation. Survey method was used for investigation and the sample for the study comprised of 406 Secondary School Teachers of English. It is evident that performance-based Assessment has been hailed as the panacea for a fair assessment system and the benefits of this mode of assessment are well documented. Yet, the Secondary School Teachers of English in Kerala have also made a few critical assessments with regard to the teaching and assessment of English that have been integrated into school education in Kerala.

Key Words: *Performance-based Assessment, Projects, Assignments, Practicals, Collections, and Class Tests, Seminars, Records*

Introduction

Assessment is a systematic process of collecting, analyzing and interpreting evidence of students' progress and achievement, both in scholastic and co-scholastic areas of learning. Systematic observation and direct rating of student performance based on an educational objective is termed as ***Performance-based Assessment.*** It involves the process of documenting, usually in measurable terms, of knowledge, skills, attitudes and beliefs. In other words, it is a test of the ability to apply knowledge in a real-life setting. Thus,

* *Associate Professor, School of Pedagogical Sciences, Mahatma Gandhi University, Kottayam, Kerala. E-mail: jayajaise@rediffmail.com*

Performance-based Assessments "represent a set of strategies for the application of knowledge, skills, and work habits through the performance of tasks that are meaningful and engaging to students" (Hibbard et al, 1996, p. 5). Hence, in order to administer any good assessment, one must have a clearly defined purpose. This type of assessment provides teachers with information about how students understand and apply knowledge. Besides, teachers can integrate Performance-based Assessments into the instructional process to provide additional learning experiences for students.

When a student is being ***informally assessed***, the student does not know that the assessment is taking place. A teacher may probably use informal performance assessments all the time. One example of such an assessment is regarding how children interact with other children (Stiggins, 1994). The teacher may also use informal assessment to assess a student's typical behavior or work habits. A student who is being ***formally assessed*** knows that the teacher is evaluating him/her. When a student's performance is formally assessed, the teacher may have the student perform a task. The teacher can either observe the student as (s)he performs specific tasks or can evaluate the quality of the finished product(s). Not Performance-based assessments require individuals to apply their knowledge and skills in context; it is not merely completing a task on cue.

Performance-based Assessment of English in Kerala

The curriculum of English at the Secondary level is the continuation of the process of reformation at primary level and underscores the acquisition of language abilities through the essentials of English. This is visualised based on the assumption that English is best acquired through rich exposure to the language and through meaningful practice in using it for effective communication. The syllabus is designed to consolidate and further expand the language abilities already acquired and to equip the learner with a rich repertoire of vocabulary and the ability to use them for communication. For this, students are provided with an acquisition-facilitating environment in real life situations for receiving and/or producing language resulting in learner-centred, interactive, and language generating life situations. Thus, the State's Course Books and curriculum transactions are designed and channelised so as to cope with the worldwide paradigm shift from the traditional teacher and textbook centric teaching-learning process to the learner and learning centric system.

In the era of these modern advancements, the learners should not be underestimated by assessing them in terms of the marks they score in written examinations alone. The multifaceted learner demands to be assessed in totality. The revised assessment strategy envisages assessing the scholastic abilities, the co-scholastic abilities, and the personal qualities of the learner in a comprehensive and continuous manner. This ensures that all the attributes of the learner are evaluated. Assessment of the scholastic abilities is done by Term End Assessment and Continuous Assessment. Content-based memory tests have given way to skill-based proficiency tests. The communicative skills as well as the creativity in expression

of the learner are evaluated by Performance-based Assessments.

Areas/Strategies employed for Performance-based Assessment of English

The ***Sourcebook on Assessment of English*** of the State Council of Educational Research and Training (SCERT), Kerala, introduces the Teachers of English to the main principles and practices of the revised assessment strategies and techniques which underscore the realisation of transactional objectives of the activity based learner centred curriculum in English. The basic assumption which serves as the backbone of the whole New Curriculum of English is that language is for communication. A language is best learnt when the learner actually starts using it rather than by learning new words and rules of grammar – the learner starts using the language by communicating. This is the fundamental change envisaged in the approach to teaching of English in Kerala.

The changed approach in assessment and guidelines for continuous assessment are included in the ***Sourcebook.*** It is expected that these will help the Teachers of English in Kerala to form an in-depth understanding of the changed system of assessment and to conduct it effectively. In Kerala, Projects, Assignments, Practicals, Collections, and Class Tests Seminars, Records are employed for conducting Performance-based Assessment of English. Each of these areas and their assessment strategies are detailed below.

- **PROJECT** is a systematic study of a problem/topic and a part of the learning process. It takes care of development of language skills and has different steps/stages, viz. Topic and Introduction (i.e. Planning regarding Method, Strategy, and Tool), Data Collection, Analysis, Arriving at Conclusion, and Report Writing. The Project has the following structure: Topic, Introduction and Objectives, Methodology, Data Collection, Analysis and Conclusion, and Appendix, if any. It may be given to all students in a class. Students should prepare any two Projects from among those suggested, which will be considered for assessment. The Projects should be written in the learners' own hand and be limited to two to five pages. It should be presented in class.

  The Grading Indicators include Planning – need and significance, Collection of Data – its classification and arrangement, Analysis and Conclusion – proper analysis and right conclusion arrived at, Report Writing – relevance of data collected, organisation, language style and appendix (if any), and Presentation – of the report and suitable response of the learner to questions raised. The Scores for each Grading Indicator in the Assessment of Projects are 4, 3, 2 and 1.

- **ASSIGNMENT** is a higher level task, as compared to those in Course/ Practice Books, on a subject given to the learners. A student should write any two Assignments from among those suggested which will be considered for assessment.

The Grading Indicators include Content (facts and ideas relevant to the task set), Organisation (ideas organised in a coherent manner), Theme (clear ideas logically presented using linking/cohesive devices), Language (accuracy, adequate vocabulary and proper spelling), Originality (creativity), and Time (submitting the Assignment within the specified time). Credit may also be given to neatness and legibility. The Scores for each Grading Indicator in the Assessment of Projects are 4, 3, 2 and 1.

- **PRACTICALS** are intended to test oral proficiency. Students may choose any two out of the following five items, viz. (i) **Reading Aloud** (a short passage from the text/newspaper is given to the learners for reading aloud). The Student is expected to read the passage in meaningful chunks with proper pauses, with right pronunciation in connected reading, and with right stress, pause and intonation. (ii) **Recitation**, where the student is asked to recite a poem or a few lines from the Course Book. The Students is expected to **r**ecite the poem with correct stress, rhythm, tone and emotional involvement. (iii) **Role Play** as Pair Work (a dialogue is given to two Students at a time and they are asked to role play it). The Students are expected to use proper expressions and have involvement and effective response to the context. (iv) **Interview** – Mock interviews are conducted in the classroom assigning roles to the learners. The performance is recorded and kept in the Portfolio. The Students are expected to give appropriate response to the questions asked using correct/right expressions effectively. (v) **Short Speech**, where the learner is asked to speak on a familiar topic (from among the topics suggested). The performance is recorded and kept in the Portfolio. The Students are expected to have ability in organising a speech, sequencing the ideas, using language appropriately, using language naturally/fluently, and employing proper gestures and facial expression. The Scores for each Grading Indicator in the Assessment of Projects are 4, 3, 2 and 1.
- **COLLECTION** involves materials collected by the Student in connection with the themes handled or activities done in the classroom. The Collection should be kept in a book and be included in the Portfolio. It need not exceed ten items in number and may include Stories (related to a suggested theme), Poems (related to a suggested theme), Travelogue, Articles, Newspaper cuttings, Speeches, and Proverbs. The Collection should be completed in December.

  The Grading Indicators include Number of items collected, Variety, Organisation, Relevance, and Neatness in maintaining the book. The Scores for each Grading Indicator in the Assessment of Projects are 4, 3, 2 and 1.
- **RECORDS** assess the creative ability of the learner. They should be limited

to one or two pages per record. Records can be done in any of the following areas: Stories, Poems, Travelogues, Autobiography, Plays/ Skits, Articles/Features, Transforming a prose text into a Conversation, Book Review, Reporting Interviews, Reporting Incidents, and Diary writing. Any two creative works will be assessed and kept in the Portfolio. The total score for each Record will be 20.

The Grading Indicators include Organisation, Originality of the work, Quality of the material, Completion of the work within the time allotted, and Neatness and legibility.

- **SEMINAR** should be conducted as part of classroom activities on a topic related to a theme/lesson presented in the class. At high school level, Seminars are conducted in the form of Group Discussions and Debates. The same topic can be assigned to one or two groups. The groups should collect relevant details, discuss them in the group, make modifications and select a representative to present the paper. One person can be selected as the moderator. All other group members can respond to the questions raised by the other Students in the class. During the presentation and discussion, the Teacher assesses the moderator as well as the Student who presents the paper. An interview can be conducted to assess the involvement of all other members in the group. Participants should make notes on the presentation which can be used while taking part in the discussion. The Seminar should be written in the learner's own hand. Each Student is expected to conduct one Seminar on a chosen topic from those suggested.

  The Grading Indicators include Data Collection (sufficiency and relevance), Organisation (introduction, content and conclusion), Presentation (fluency and spontaneity), Involvement in the discussion, and Knowledge and Attitude of the Student in the subject. The Scores for each Grading Indicator in the Assessment of Projects are 4, 3, 2 and 1.

- **CLASS TEST** can be a Unit Test. It is a formative test to be conducted in one period. It will also serve as a Diagnostic Test, which should be capable of identifying the difficulties of the learner and in suggesting remedial measures. It should be a written test with a total score of 20 and should be given scores and grades. The Class Test should be administered during the months of July and November and the Answer scripts are to be kept in the Portfolio.

Methodology

- It was ***Hypothesised*** that Secondary School Teachers of Kerala face Challenges in implementing Performance-based Assessment of English.
- The ***Objectives*** were to expose the Challenges, if any, encountered by Secondary School Teachers of Kerala

in the implementation of Performance-based Assessment of English and to gather ***Suggestions*** for their alleviation.

- ***Survey Method*** was used for investigation.
- The ***Sample*** for the study comprised of 406 Secondary School Teachers of English which judiciously represented its population. The sample included 82 Male Teachers and 324 Female Teachers. There were 54 Teachers below 30 years of age, 288 Teachers from 30 to 40 years of age and 64 above 40 years of age. The sample had 120 Teachers with B.A. and B.Ed. as qualifications, 236 Teachers with M.A. and B.Ed. as qualifications and 50 with higher qualifications like SET, M.Phil. and Ph.D. There were 260 Teachers from Rural Schools and 146 Teachers from Urban schools. The sample included 96 Teachers from Government schools, 274 Teachers from Aided schools and 36 Teachers from Unaided schools.
- An ***Opinionnaire*** based on the indicators and scores as prescribed by the Kerala SCERT for Performance-based Assessment of English at Secondary School level was used for gathering data.

Findings of the Study

The findings that evolved from the survey conducted, pertaining to the Challenges in implementing Performance-based Assessment of English and the Suggestions for facing them, are organised in two sections. The details of the opinion of the Teachers follow.

I. Challenges in implementing Performance-based Assessment of English

The survey revealed that Secondary School Teachers of English in Kerala do face Challenges in implementing Performance-Based Assessment. The Teachers expressed concern and voiced several inconveniences in connection with the ongoing Performance-Based Assessment of English. Some of their apprehensions and hassles are regarding

- the effectivity of this system of assessment in the context of overcrowded classrooms.
- the large number of students in a class, which is detrimental to efficient teaching as well as effective assessment.
- the difficulty of involving maximum students in a group due to the large class strength.
- the large number of students in a class, resulting in incapability to provide individual attention.
- the uninteresting and vast topics.
- the hectic schedules for uncovering the syllabus.
- the unavoidability of eventually adhering to exam-oriented teaching towards the end of the semester.
- the inadequate time to complete the area prescribed for a semester, resulting in inability to complete the lessons, the grammar exercises, the activities and the prescribed

Performance-Based Assessment, within the limited timeframe with a class of 40 to 45 students.

- the stressful task of curriculum transaction and assessment resulting in burn out.
- the time-consuming tasks prescribed for Performance-Based Assessment of English.
- the lack of infrastructure like movable furniture, seating arrangement, computers, LCD projector, and the like, which are essential for any classroom, especially for a Second Language like English.
- the insufficient directions obtained with regard to the practical implementation of Performance-Based Assessment of English.
- the difficulty experienced in conducting Performance-Based Assessment of English for below-average students as compared to the average and above-average students.
- the poor capacity and performance of the students.
- the deficiency of basic language/ communication skills among students.
- the lack of ability of students to actively participate in curricular exercises in English.
- the incapability of students to locate and use English words appropriate to the context.
- the indifference of students towards learning, using and being assessed on their performance in English.

II. Suggestions for facing Challenges while implementing Performance-Based Assessment of English

Secondary School Teachers of Kerala have put forth suggestions to face the Challenges they encountered in the implementation of Performance-Based Assessment of English. Some measures are suggested are:

- Make available simple and more student-friendly Text books.
- Reduce the number of Tasks, Activities and Practicals allocated for Performance-Based Assessment.
- Trim down the overloaded syllabus.
- Curtail the number and length of the Units prescribed for study.
- Minimise the content for study and provide ample assignments on reading and writing of English vocabulary.
- Give importance to activities on English language elements and structure.
- Decrease the workload of Teachers as well as Students.
- Fix the Student-Teacher ratio as 20:1.
- Limit the number of Students in a class to 20 or 25.
- Devote more time to English language teaching.
- Ensure that Students are provided with immense opportunities for exposure to English language from lower classes itself.
- Improve quality at grass root level and conduct impartial assessments from primary classes itself.

- Introduce Students to the English Language Laboratory in all schools of the State irrespective of the Locale or Management Category of the School.
- Simplify the mode of Assessing Performance of English.
- Provide periodic in-service refresher sessions (once or twice every year) for Teachers of English regarding curriculum transaction and conduct of Performance-Based Assessment.
- Adhere strictly to the indicators and scores prescribed for Performance-Based Assessment of English.
- Disallow promotions to Students who do not have the basics of the English language.
- Provide improved facilities and infrastructure to all schools of the State irrespective of the Locale or Management Category of the School.
- Include Teachers of English in the Curriculum Committee.

Implications of the Study

Performance-based Assessment has been hailed as the panacea for a fair assessment system and the benefits of this mode of Assessment are well documented. Yet, the Secondary School Teachers of English in Kerala have also made a few critical assessments with regard to the Teaching and Assessment of English that have been integrated into the system of school education in Kerala. Some of their observations are noted below.

- Disagreement with the present approach to teaching English and preference for traditional method of teaching and assessment, because they were systematic.
- Portfolios are a mere waste of time; more concentration can be given to teaching if these are avoided.
- The Students in Schools having Malayalam (the vernacular) as Medium of Instruction lack proficiency in English Grammar, because the Textbooks prescribed for study do not give much importance to teaching-learning of Grammar.
- Forty-five minutes of hearing/listening/speaking/teaching-learning English is insufficient to bring fluency in English to Students, since the mother tongue is primarily used for classroom communication.
- ICT-assisted teaching-learning of English helps Students to understand the idea of the prescribed lesson; but deficits in language skills dominate the classroom.
- Participation in school/sub-district/district/state/national English Mela/Congress and the like (as in Students' Science Congress) and institution of Awards will motivate Students to evolve a healthy attitude towards the English language.
- A welcome change has been incorporated since the academic year 2011-12, wherein there is only one English Textbook and English Examination Paper in place of the two which was previously being followed.

The feedback from the Secondary School Teachers of English in Kerala regarding the challenges in implementing the Performance-based Assessment as prescribed by the Kerala SCERT points to the urgent need to take immediate steps for their mitigation. It is hoped that the opinion of the Teachers will serve as an eye opener for the Department of Public Instruction, SCERT in Kerala and the Government of Kerala and that it will evoke appropriate response for better implementation of Performance-based Assessment of English.

This investigation was conducted as part of the Minor Research Project undertaken with the financial assistance of University Grants Commission.

References

Dixit, Akansha (2005). "Grading Scores over Marking". *Edutracks,* 5, 6-8.

Garret, H. E. (1981). *Statistics in Psychology and Education*. Bombay: Vakils, Fefer and Simons Ltd.

Hibbard, K.M. et al. (1996). *A Teacher's Guide to Performance-based Learning and Assessment.* Alexandria, VA: Association for Supervision and Curriculum Development.

Kubinszyn, Tom and Borich, Gary (1993). *Educational Testing and Measurement: Classroom Application and Practice.* NY: Harper Collins College Publishers.

Mohan, K. and Banerji, M. (2000). *Developing Communication Skills.* New Delhi: Mac Millan India Ltd.

Rubin, Dorothy (1990). *Teaching Elementary Language Arts* (4th ed.). USA: Allyn and Bacon.

Sreevastava, H.S. (2004). "Grading is Better Index of Performance". *Edutracks*, 4, 6-9.

Stiggins, R.J. (1994). *Student-centered Classroom Assessment.* NY: Macmillan Publishing Company.

Stobart, Gordon (2005). "What does a Grade Mean?" *Assessment in Education*, 12, 101-103.

Syhia, Laster (1991). *Benchmarks: The Development of a New Approach to Student Assessment.* Ontarei: Toronto Board of Education.

Educational Extracts
Vol. I Issue I January 2013
pp. 28-35

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

A STUDY ON B.Ed. STUDENTS' ACADEMIC STRESS IN NAGAPPATTINAM DISTRICT OF TAMILNADU

Dr. S. Venkataraman*

Abstract

This study was conducted on 200 B.Ed. teacher trainees of Nagappattinam District of Tamilnadu. Normative survey method was employed. The tool used in this study is Academic Stress Scale developed by A. O. Busari (2011). Sub samples selected were Gender, Group, Locality, Parental Education, Community, Percentage of Attendance and Parental Occupation. The main findings of the present investigation are: a) the calculated mean score of entire sample indicates that the B.Ed., students have high level of Academic Stress (M=161.89), b) there is significant difference between Male and Female, rural and urban, B.Ed., students with Illiterate & School educated parents, with below 80% attendance and above 80% attendance students with respect to their Academic Stress, c) there is no significant difference between Arts and Science students, students with Illiterate & College and School & College educated parents, in terms of Community (OC/BC/MBC/SC/ST) and Parental Occupation (Govt./Private/ Self) with respect to their Academic Stress.

Key Words: *Academic Stress, Parental Education, Community, Percentage of Attendance and Parental Occupation*

Introduction

Stress is the body's reaction to a change that requires a physical, mental or emotional adjustment or response. But too much stress can cause a lot of discomfort and can get in the way of being able to focus and achieve. As a college student all have a lot of demands on them, which it can be difficult to balance. Mannapur B. et al (2010) observed that stress is a term in Psychology and Biology, which in the more recent decades, has become a common place of popular parlance. The term 'stress' was first employed in the 1930's by the endocrinologist Hans Selye.

Stress is caused by an existing stress-causing factor or "stressor." All are aware

**Assistant Professor, Department of Education, Annamalai University, Annamalai Nagar-608 002*
E.mail:karaivenkat@yahoo.com

of fearfulness of examinations and especially about practical examination in a medical college. Whether it is a test or an annual promotion examination, it does cause to lose some sleep which leads to anxiety. Reem Rachel A. (2009) confirmed the general impression that there is a considerable amount of stress among medical students. Perceived stress was significantly higher among female students.

Academic Stress

Stress has become an important topic in academic circle as well as in our society. Many scholars in the field of behavioural science have carried out extensive research on stress and its outcomes and concluded that the topic needed more attention. Stress in academic institutions can have both positive and negative consequences if not well managed. Academic institutions have different work settings compared to nonacademic and therefore one would expect the difference in symptoms, causes, and consequences of stress in the two set up (Elfering et al., 2005; Chang and Lu, 2007). It is important to the society that students should learn and acquire the necessary knowledge and skills that will in turn make them contribute positively to the development of the general economy of any nation. However, the intricate academic environment sometimes poses great medical problems to the students' lives that tend to negate the positive gains that one would expect after completion of University. These scholars assertion needs attention if the needed stress management in university has to be effective.

Need and Significance of this Study

The motivation for this research is that, there have been reported cases of stress among students that has resulted in loss of lives. The causes for such actions are not known since the victims of stress are never present to tell their stories. Although the counseling centre within the University do keep records of students who seek help from them, but this alone has failed to help identify strongly the causes and coping mechanisms. Again, there have been cases of reported violence among some students, and reported cases of poor lectures attendance. Particularly for Teacher trainees, to get practiced well they should be stress free, Hence the investigator decided to take up this study.

Objectives of this Study

The present study has the following objectives:-

1. To find out the B.Ed., students' level of Academic Stress.
2. To find out whether there is any significant difference between Male and Female students in their Academic Stress.
3. To find out whether there is any significant difference between Arts and Science students in their Academic Stress.
4. To find out whether there is any significant difference between rural and urban located students in their Academic Stress.
5. To find out whether there is any significant difference in the Academic Stress of B.Ed., Students with respect

to parental Education (Illiterate/ School/College).

6. To find out whether there is any significant difference in the Academic Stress of B.Ed., Students with respect to their Community (OC/BC/MBC/ SC/ST).
7. To find out whether there is any significant difference between Students with below 80% attendance and above 80% attendance with respect to their Academic Stress.
8. To find out whether there is any significant difference in the Academic Stress of students with respect to their Parental Occupation (Govt./Private/ Self).

Hypotheses of the Study

Suitable Hypotheses were framed on the basis of framed objectives.

Method of Study

In the present study, Normative Survey method is adopted.

Sample of this Study

Random sampling technique is used in the selection of the sample for 200 B.Ed., Students.

Tool used in this Study

The tool used in this study Academic Stress Scale developed by A. O. Busari (2011).

Statistical Techniques Used

The following statistical techniques are used to analyse the data collected from the sample

1. Descriptive analysis – Mean and standard Deviation
2. Differential analysis – 't' test and 'F' test

In order to find out the Academic Stress of B.Ed., students, the mean and S.D have been calculated.

Entire Sample

The calculated mean score of entire sample indicates that the B.Ed., students have high level of Academic Stress (M=161.89)
.

Differential Analysis

Analysis of mean scores of Male and Female Students with respect to their Academic Stress

Null hypothesis

There is no significant difference between Male and Female students with respect to their Academic Stress. In order to test the above Null hypothesis 't' value is calculated.

Table 1

Significance of difference between Male and Female students with respect to their Academic Stress

Group	N	Mean	SD	t-value	Significance at 0.05 level
Male	100	169.52	28.42	3.92	Significant
Female	100	154.26	26.60		

From the above table, since the 't' value is not significant at 0.05 level, the above Null hypothesis is rejected and it is concluded that there is significant difference between Male and Female students with respect to their Academic Stress.

Analysis of mean scores of Arts and Science students with respect to their Academic Stress

Null hypothesis

There is no significant difference between Arts and Science students with respect to their Academic Stress. In order to test the above Null hypothesis 't' value is calculated.

Table 2

Significance of difference between Arts and Science students with respect to their Academic Stress

Group	N	Mean	SD	t-value	Significance at 0.05 level
Arts	109	161.40	29.25	0.265	Not significant
Science	91	162.47	27.72		

From the above table, since the 't' value is not significant at 0.05 level, the above Null hypothesis is accepted and it is concluded that there is no significant difference between Arts and Science students with respect to their Academic Stress.

Analysis of mean scores of Rural & Urban school Students with respect to their Academic Stress

Null hypothesis

There is no significant difference between rural and urban located students with respect to their Academic Stress. In order to test the above Null hypothesis 't' value is calculated.

Table 3

Significance of difference between rural and urban school students with respect to their Academic Stress

Locality	N	Mean	SD	t-value	Significance at 0.05 level
Rural	99	155.24	27.30	3.34	Significant
Urban	101	168.40	28.27		

From the above table, since the 't' value is significant at 0.05 level, the above Null hypothesis is rejected and it is concluded that there is significant difference between rural and urban students with respect to their Academic Stress.

Analysis of Significance of the difference among the sub-samples of B.Ed., students' parental education with respect to their Academic Stress

Null hypothesis

There is no significant difference in the Academic Stress of B.Ed., Students with respect to their parental Education (Illiterate/School/College). In order to test the above Hypothesis 'F' value is calculated.

Table 4

Significance of difference in the Academic Stress of B.Ed., Students with respect to their parental Education (Illiterate/School/College)

	Sum of Squares	df	Mean Square	F	Significance at 0.05 level
Between Groups	4164.18	2	2082.09	2.604	Significant
Within Groups	157513.39	197	799.56		
Total	161677.58	199			

From the above table, since the 'F' value is significant at 0.05 level,'t' values are calculated.

Table 5

Significance of difference between students with Illiterate and School educated parents with respect to their Academic Stress

Parental Education	N	Mean	SD	t-value	Significance at 0.05 level
Illiterate	54	156.12	26.89	2.201	Significant
School	106	166.12	27.68		

Table 6

Significance of difference between students with Illiterate and College educated parents with respect to their Academic Stress

Parental Education	N	Mean	SD	t-value	Significance at 0.05 level
Illiterate	54	156.12	26.89	0.375	Not significant
College	40	158.45	31.51		

Table 7

Significance of difference between students with School and College educated parents with respect to their Academic Stress.

Parental Education	N	Mean	SD	t-value	Significance at 0.05 level
School	106	166.12	27.68	1.355	Not significant
College	40	158.45	31.51		

From the above tables, since the 't' value is significant at 0.05 level, for the mean scores of students with Illiterate & School educated parents, and not significant for students with Illiterate & School, and for School & College educated parents with respect to their Academic Stress, the above Null hypothesis, is partially accepted and it is concluded that there is significant difference in the Academic Stress of B.Ed., students with Illiterate & School educated parents and there is no significant difference between students with Illiterate & College and School & College educated parents.

Analysis of Significance of the difference among the sub-samples of Community with respect to their Academic Stress

Null hypothesis

There is no significant difference in the Academic Stress of B.Ed., students with respect to their Community (OC/BC/MBC/SC/ST). In order to test the above Null hypothesis 'F' value is calculated.

Table 8

Significance of difference among the sub-samples of Community of B.Ed., students with respect to their Academic Stress.

	Sum of Squares	df	Mean Square	F	Significance at 0.05 level
Between Groups	2495.91	3	831.97	1.024	Not significant
Within Groups	159181.66	196	812.15		
Total	161677.58	199			

From the above table, since the 'F' value is not significant at 0.05 level. Hence the Null Hypothesis is accepted and concluded that there is no significant difference in the Academic Stress of B.Ed., students with respect to their Community (OC/BC/MBC/SC/ST).

Analysis of mean scores of Students with below 80% attendance and above 80% attendance with respect to their Academic Stress

Null hypothesis

There is no significant difference between Students with below 80% attendance and above 80% attendance with respect to their Academic Stress. In order to test the above Null hypothesis 't' value is calculated.

Table 9

Significance of difference between Students with below 80% attendance and above 80% attendance with respect to their Academic Stress.

Percentage of attendance	N	Mean	SD	t-value	Significance at 0.05 level
Below 80%	67	173.43	27.94	4.18	Significant
Below 80%	133	156.07	27.06		

From the above table, since the 't' value is significant at 0.05 level, the above Null hypothesis is rejected and it is concluded that there is significant difference between Students with below 80% attendance and above 80% attendance with respect to their Academic Stress.

Analysis of Significance of difference among the sub-samples of B.Ed., students' Parental Occupation with respect to their Academic Stress

Null hypothesis

There is no significant difference in the Academic Stress of B.Ed., students with respect to their Parental Occupation (Govt./ Private/Self). In order to test the above Null hypothesis 'F' value is calculated.

Table 10

Significance of difference in the Academic Stress of B.Ed., students with respect to their Parental Occupation (Govt./Private/Self)

	Sum of Squares	df	Mean Square	F	Significance at 0.05 level
Between Groups	1992.94	2	996.47	1.229	Not significant
Within Groups	159684.63	197	810.58		
Total	161677.58	199			

From the above table, since the 'F' value is not significant at 0.05 level. Hence the Null Hypothesis is accepted and concluded that there is no significant difference in the Academic Stress of B.Ed., students with respect to their Parental Occupation (Govt./Private/Self).

Summary of Findings

The hypotheses formulated at the beginning of the study have been examined in the light of the data gathered. The following are the main findings of the present investigation.

- The calculated mean score of entire sample indicates that the B.Ed., students have high level of Academic Stress (M=161.89)
- There is significant difference between Male and Female students with respect to their Academic Stress.
- There is no significant difference between Arts and Science students with respect to their Academic Stress.
- There is significant difference between rural and urban students with respect to their Academic Stress.
- There is significant difference in the Academic Stress of B.Ed., students with Illiterate & School educated parents and there is no significant difference between students with Illiterate & College and School & College educated parents.
- There is no significant difference in the Academic Stress of B.Ed., students with respect to their Community (OC/ BC/MBC/SC/ST).
- There is significant difference between Students with below 80% attendance and above 80% attendance with respect to their Academic Stress.

- There is no significant difference in the Academic Stress of B.Ed., students with respect to their Parental Occupation (Govt./Private/Self).

Recommendations

The following recommendations are made on the basis of the findings f this study:

- In general B.Ed., students expressed high level of Academic stress, this may harm the quality of the training, and hence the institutions should take care of their well being.
- Male, Urban, Students with School Educated parents, SC/ST community students, students with below 800% attendance and students with self employed parents have shown higher academic stress, hence efforts to be taken to reduce their Academic stress. Counseling centers are to be set up on schools to meet the students need.

Conclusion

This study show high level of Academic stress among B.Ed., teacher trainees. Further research would be beneficial in the area of tertiary academic stress for B.Ed., students. It is strongly suggested that more research be conducted in this area to gain a more comprehensive understanding of the psychological processes in relation to stress of university students, as it is an essential component for future teachers effective training.

References

Akbar Hussain et al., (2008) Academic Stress and Adjustment among High School Students, Journal of the Indian Academy of Applied Psychology, Vol. 34, 70-73.

Anna Zajacova et al., (2005) Self-Efficacy, Stress, and academic success in college, Research in Higher Education, Vol. 46, No. 6, 677-706.

Gemma Wilson & Robyn Gillies (2005) Stress Associated With the Transition From High School to University: The Effect of Social Support & Self-Efficacy, Australian Journal of Guidance & Counselling, Vol.15,1, 77–92.

Habibah Elias et al., (2011) Stress and Academic Achievement among Undergraduate Students in Universiti Putra Malaysia, Procedia - Social and Behavioral Sciences, Volume 29, 646-655.

Parvin Kadivar et al., (2011) Survey on Relationship between Goal Orientation and Learning Strategies with Academic Stress in University Students, Procedia - Social and Behavioral Sciences, Volume 30, 453-456.

Pýnar Erturgut and Ramazan Erturgut (2010) Stress and academic self esteem in primary school children who applied to the hospital: A research in pediatric hospitals in Turkey, Procedia - Social and Behavioral Sciences, Volume 2, Issue 2, 1200-1204.

Yangyang Liu and Zuhong Lu2 (2011) Chinese High School Students' Academic Stress and Depressive Symptoms: Gender and School Climate as Moderators, Stress and Health,

Zhong, (2009) Academic stress & subjective well-being: The moderating effects of perceived social support, Industrial Engineering and Engineering Management, IE&EM '09.16th International Conference on 21-23 Oct. 2009, 1321 – 1324.

Educational Extracts
Vol. I Issue I January 2013
pp.36-50

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

EFFECTIVENESS OF 7E LEARNING CYCLE IN LEARNING PHYSICS ON SELECT ENQUIRY SKILLS AMONG THE UNDERGRADUATE PHYSICS STUDENTS

Dr. (Sr.) Celene Joseph*

Abstract

The study aimed at comparing the effectiveness of 7E Learning Cycle in teaching Physics with existing method on scores on Inquiry Skills and the scores on select component skills of Inquiry- skill of drawing inference, skill of hypothesising and skill of experimenting among the Graduate students in Kottayam district. The design selected for the study was true experimental, post-test only non-equivalent two group design. The sample included 74 first year B.Sc. Physics students- 37 students each were there in the experimental and control groups. Descriptive Statistics Mean and Standard Deviation and the inferential statistics ANCOVA were used for analyzing the data. The tools used in the study were: Test on Inquiry Skills- Developed and standardized by Joseph Celene (2008) and the Instructional Materials by using Constructivist Approach and existing methods developed by the investigator. The major findings of the study are 7E Learning Cycle in teaching Physics is effective for developing Inquiry Skills and the select components of inquiry skills when compared with existing method among the graduate students in Kottayam district.

Key Words: *The 7E learning cycle, Inquiry skills, Skill of drawing inference, skill of hypothesising, skill of experimenting*

Introduction

The entire classroom scenario has undergone changes recently. The concept of teaching is changing. The emphasis from 'content' has shifted to source and means and in turn to context. Therefore teaching rather than informing is the more preferential term. Emphasis is on 'Learning to learn', 'Learning to think', 'Learning to view' and 'developing study skills'. Teaching is the important part of the process of education. Its special function has changed from imparting knowledge and developing to facilitating knowledge generation and skill development. Experienced teachers know that it is not simply a matter of sharing what

* *Associate Professor, St. Thomas College of Teacher Education, Pala, Kerala. PIN-686 575, E-mail: pavithracelene@yahoo.com*

they know with their students. Teaching is a complex and challenging profession. A good teacher must be able to transform knowledge into learning activities that motivate students to learn. Thus teaching can be viewed as having both artistic and scientific elements. Education of students should be a partnership between the teacher and the student and it is the greatest gift that can be given to a student. A good teacher needs to have the ability to inspire curiosity and needs to be a coach, colleague and friend. It is feasible only in a constructivist-learning environment. Education works best when it concentrates on thinking and understanding rather than on rote memorization.

Constructivism is basically a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. The highlighted ideas of constructivism is that learners learn best when they actively construct their own knowledge. Learning is a process of constructing meaningful representation of knowledge depends on the degree to which learners integrate new knowledge with their existing knowledge base. In reality, learning is a process of construction and reconstruction of knowledge. A learner becomes an active participant in knowledge structuring, engages in restructuring, manipulating, reinventing and experimenting with knowledge to make it meaningful and permanent. Learning is an internal process and it is influenced by the learners' personality, prior knowledge and learning goals (Davidson, 1995). The key features of constructivist epistemology are that human beings construct mental model of their world and new experiences are interpreted and understand in relation to existing mental models. Constructivism means construction of knowledge in the sense that learners actively construct there own knowledge by learning new information based on the the existing knowledge and the new materials presented to them.

Constructivism advocates learner-centered, activity oriented and interactive pedagogic approach, which has the following ideas.

- Learning is considered as a process
- How to learn is more important than what to learn
- Emphasizes learning rather than rote memorization
- Encourages the spirit of enquiry
- Supports cooperative learning
- Encourages dialogue and communication among students and teachers
- Performance is given importance in evaluation
- Nurtures the learner's instinctive curiosity
- Provides opportunity for the creation of ideas and concept and
- Encourages learning through life situation

Constructivist teaching Strategies

Constructivism was earlier viewed as a theory of learning, rather than a

prescription for teaching methods. But now, constructivist teaching is an active reform, and has started experimentally and report the instructional practices which help teachers nurture students as independent thinkers and constructors of knowledge.

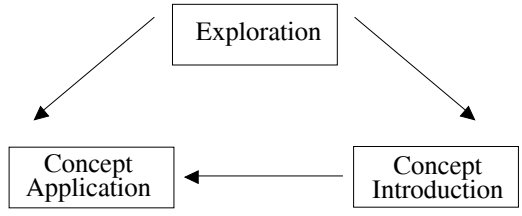
Constructivism is based on the belief that learners actively create, interpret and reorganize knowledge in individual ways. These fluent intellectual transformations occur when students reconsider formal instructional experiences with their existing knowledge, the cultural and social knowledge and contexts in which the ideas occur and with a lots of other influences that save to mediate understanding.

The instructional strategy based on constructivist belief, suggests that students should participate in experiences that accommodate constructivist ways of learning. Such experiences include inquiry activities, discovery, problem solving, discussion with peers and teachers, collecting and interpreting information from different sources, expressing their understanding in diverse ways, applying and validating their understanding in new ways etc. Teachers must provide alternative learning situations and complex learning environment and facilitate negotiations.

Learning Cycle

The learning cycle model of instruction, originally proposed by Robert Karplus, is based on Piagetian theory and involves a constructivist approach to teaching. It is intended to help students' progress from concrete to abstract thinking about content (i.e., from concrete to formal operations). Learning cycles teach science in three consecutive phases known as exploration, term introduction, and concept application that are based on the way people spontaneously learn about the world (Lawson, Abraham, & Renner, 1989). These phases have been described as follows: Exploration allows students to investigate new materials and/or ideas, so that patterns of regularity can be discovered and questions are raised for which students then attempt to answer. Term introduction allows the teacher to introduce terms to label the patterns and to explain the newly invented concepts. Concept application provokes students to seek the patterns elsewhere and to apply the new concepts to additional examples, often employing abstraction or generalization techniques (Lawson, et.al. 1989). Research has supported the effectiveness of the learning cycle in encouraging students to think creatively and critically, as well as in facilitating a better understanding of scientific concepts, developing positive attitudes toward science, improving science process skills, and cultivating advanced reasoning skills (Lawson, 1995, pp. 418–431, for a summary of learning cycle research).

Figure 2.2
Learning Cycle of Science Curriculum Improvement Study



As an instructional approach, the origin of the learning cycle is generally attributed to the Science Curriculum Improvement Study (SCIS) materials of the 1970s. Many versions of the learning cycle appear in science curricula with phases ranging in number from three to five (5Es) to seven (7Es).

The 5E learning cycle based instruction was developed by the Biological Sciences Curriculum Study (BSCS) in 1989. It consists of 5 phases namely, Engagement, Exploration, Explanation, Elaboration and Evaluation.

Another version of learning cycle is 7E model (elicit, engage, explore, explain, elaborate, evaluate, and extend). Research on how people learn and the incorporation of that research into lesson plans and curriculum development demanded that the 5E model to be expanded to a 7E model. The proposed 7E model expands the engage phase in the 5E model into two components- elicit and engage. Similarly, the 7E models expand two stages of 5E model- elaborate and evaluate- into three components, elaborate, evaluate, and extend.

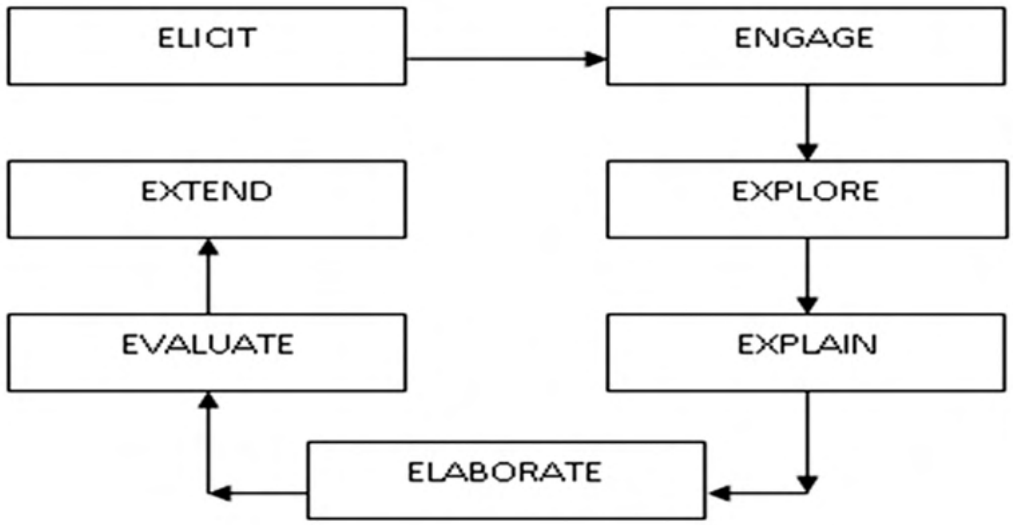
The engage component in the 5E model is intended to capture students' attention, get students' thinking about the subject matter, raise questions in students' minds, stimulate thinking, and access prior knowledge. The engage component includes both accessing prior knowledge and generating enthusiasm for the subject matter. The importance of eliciting prior understanding in ascertaining what students know prior to the lesson is imperative. When recognizing that students construct knowledge from existing knowledge, teachers need to find out what existing knowledge their students possess. The proposed expansion of the 5E model does not exchange the engage component for the elicit component. The engage component is still a necessary element in good instruction. The goal is to continue to excite and motivate students in whatever ways possible and to identify their prior conceptions.

The addition of the extend phase is intended to explicitly remind teachers of the importance for students to practice the transfer of learning. Teachers need to make sure that knowledge is applied in a new context and is not limited to simple elaboration. The goal of the 7E learning model is to emphasize the increasing importance of eliciting prior understanding and extending, or transfer of concepts. Eisenkraft opines that with this new model, teachers should no longer overlook these essential requirements for student learning (Eisenkraft, 2003).

Whether the instruction have three phases, five phases or seven phases, the teacher should design a learning cycle to reveal prior knowledge, to show that students' misconceptions are not suitable for explaining scientific concepts and to let the students see that these new concepts are intelligible, plausible and fruitful.

7E learning cycle

The learning cycle is a model for designing science lessons to foster successful, positive experiences for students.



The 7 E learning cycle constitutes seven phases such as Elicit, Engage, Explore, Explain, Elaboration, Extend and Evaluate.

Phase 1 – Elicit

The purpose of the Elicit phase is the determination of the prior conceptions of students. This phase includes a "Student Talk" that is discussion of some aspect of the content. This phase might be addressed through the process of interviewing selected students about their background knowledge of the key ideas of the lesson.

Phase 2 - Engagement

In this phase activities that initiate students' curiosity are included. These activities help students to make connections with the previous knowledge. The Engage phase is intended to motivate students and to capture their interest in the topic. It can be done in many ways such as through a discrepant event, demonstration, an interesting natural or human made object, a challenging question, or a problem to solve. In this stage the teacher creates interest, creates curiosity, raises questions, and elicits responses that uncover what students know or think about the concept. The student asks questions such as: "Why did this happen?", "What do I already know about this?", "What can I find out about this?" and shows interest in the topic. (Carin & Bass, 2000)

Phase3 - Exploration

Once students are engaged in the learning tasks, exploration activities follow. In exploration, students observe properties, form simple relationships, note patterns and raise questions about events to develop fundamental awareness of the nature of materials and ideas. They have the opportunity to get directly involved with phenomena. The teacher's role in the exploration phase is that of guide, coach and facilitator. In this stage the teacher encourages students to work without direct instruction from the teacher, observes and listens to students as they interact, asks probing questions to redirect students'

investigations when necessary, provides time for students' investigations when necessary, provides time for students to puzzle through problems and acts as a consultant for students. The student thinks freely, but within the limits of the activity, tests predictions and hypotheses, forms new predictions and hypotheses, tries alternatives and discusses them with others, records observations and ideas and suspends judgment. (Carin & Bass, 2000).

Phase 4 – Explanation

In this phase, teachers help students make sense of their observations and answer the questions that arise from their observations. The teacher asks children to describe what they see and to give their own explanations of why it happened. Then, the teacher introduces a scientific explanation for the event through formal and direct instruction. The teacher connects the scientific explanation with the physical evidence from exploration and engagement and relates it to the explanations that the children have formed. Verbal methods are most common here, but the teacher might also use videos, books, multimedia presentations, and computer courseware. In this stage the teacher , encourages students to explain concepts and definitions in their own words, asks for justification (evidence) and clarification from students, formally provides definitions, explanations and new labels and uses students' previous experience as the basis for explaining concepts. The student explains possible solutions or answers to others, listens critically to one another's explanations, questions one another's explanations, listens to and tries to comprehend explanations offered by the teacher, refers to previous activities and uses recorded observations in explanations (Carin & Bass, 2000)

Phase 5- Elaboration

In this phase new experiences are designed to assist children in developing broader understandings of the concepts already introduced. Students expand on the concepts they have learned, make connections to other related concepts, and apply their understanding to the real world around them. Children work in cooperative groups, identify and complete new activities. It often involves experimental inquiry, investigative projects, problem solving and decision making. Lab work is common. Small-group and whole-class discussions provide students opportunities to present their own understandings. By observing the students in this phase the teacher may decide to recycle through the different phases of the 7E Learning Cycle to improve children's understanding or move on to new science lessons.

In this stage the teacher expects students to use formal labels, definitions, and explanations provided previously, encourages students to apply or extend the concepts and skills in new situations, reminds students of alternative explanations, refers students to existing data and evidence and asks: "what do you already know?" "why do you think…?" The student applies new labels, definitions, explanations, and skills in new, but similar situations, uses previous information to ask questions, propose solutions, and make decisions, design experiments, draws reasonable conclusions from evidence, records

reasonable conclusions from evidence, records observations and explanations and checks for understanding among peers (Carin & Bass, 2000)

Phase 6 – Extend

The purpose of this phase is to provide for the transfer of the new concepts to different contexts. This phase challenges student's understandings to apply what they have learned.

Phase 7- Evaluation

Evaluation and assessment occurs at all points along the continuum of the instructional process. Rubrics, teacher observation structured by checklists, student interviews, portfolios designed with specific purposes, project and problem-based learning products, concept maps and roundhouse diagrams may be used to assess students' understanding of concepts. By using this tool the teacher can detect students' misconceptions and correct the inaccurate conclusions. Roundhouse diagrams may be used as a tool in the evaluation part. By using these tools teachers observe students as they apply new concepts and skills to assess students' knowledge and/ or skills, looking for evidence that the students have changed their thinking or behaviours. The opportunity to allow students to assess their own learning and group-process skills is often provided.

In this stage the teacher observe students as they apply new concepts and skills, assesses students' knowledge and/ or skills, looks for evidence that students have changed their thinking or behaviours, allows students to assess their own learning and group process skills and asks open-ended questions, such as: "why do you think….?", "what evidence do you have?", "What do you know about x?" How would you explain x?" The student answers open-ended questions by using observations, evidences, and previously accepted explanations and demonstrates an understanding or knowledge of the concept or skill. (Carin & Bass, 2000)

Need for the Study

Today's society is in a state of continuous change. This is characterized by quickly advancing technology with its outpouring information. The schools and colleges must take a major part of the responsibilities to help students acquire and develop the skills needed to cope with the growing information age. Education must not only provide relevant and appropriate knowledge, but it must also equip students with the skills, needed for fulfilling career of lifelong learning.

The constructivist approach leads to building upon students' spontaneous love for learning, developing student-independence and accompanying self motivation and willingness to take responsibility, respecting students, beliefs, engaging them and building upon them; pursuing learning real life activities instead of doing a set of activities disconnected from life.

Equipping students with inquiry skills plays an important role in Science. Inquiry is a human activity which is a part of daily living. Sometimes it is interest-oriented inquiry in which an individual is motivated by curiosity and seeks information about something that has taken his/her fancy. At other times it may be problem- oriented

inquiry in which an individual seeks to establish a choice through hypothesizing, selecting hypothesis and testing hypothesis. Constructivist method helps the students develop inquiry skills.

Research suggests that constructivist strategies especially the 7E Learning Cycle is an effective way to teach children the knowledge and skills needed for living as an intelligent person in society. It encourages active and meaningful learning and promotes responsibility and autonomy. As constructivist teaching is beneficial in achieving desirable educational goals it is important for teachers to grow professionally towards a constructivist practice. The responsibility for the professional development of teachers falls largely on teachers themselves. To encourage incentive, the teachers need to be provided with opportunities and resources. They need to know that their effectiveness is being supported by their colleagues and administrators.

For constructivist pedagogical approach to learning, certain strategies have been suggested involving pear-tutoring, collaboration, cooperative learning, self-monitoring and meta-cognition strategies and the 7E learning cycle. The teacher acts on the mind and conscience of the students in such a manner that they are able to unfold their hidden potentials including regards for ethical values.

While adopting 7E learning cycle, classroom activities relies heavily on collaboration among students. There are many reasons for why collaboration contributes to learning. The main reason for why it is used so much in constructivism is that the students learn about learning not only from themselves but also from their peers. Students ask questions, investigate a topic and use a variety of resources to find solutions and answers as they explore the topic and draw conclusions. As exploration continues they revise those conclusions. Exploration of questions leads to more questions. Students have ideas that, they may later see, whether invalid, incorrect or insufficient to explain new experiences. These ideas are temporary steps in the integration of knowledge. Constructivist teaching takes into account students' current conceptions and builds from there.

Constructivism especially the 7E Learning Cycle has been found to be useful in the teaching learning process. Children learn more and enjoy learning more when they are actively involved in the learning process rather than when they are simply passive listeners. It concentrates on learning how to think and understand. Constructivist learning is transferable, that is, in constructivist classrooms, students create organizing principle that they can take with them to other learning settings. Constructivism gives students ownership of what they learn, since learning is based on students' questions and explanations, and often the students have a hand in designing the assessment as well. Learning is considered as a process. This method encourages the creation of ideas and concepts. It promotes social and communication skills by creating classroom environment that emphasizes collaboration and exchange of ideas.

Statement of the Problem

The study is entitled as "EFFECTIVENESS OF 7E LEARNING CYCLE IN LEARNING PHYSICS ON SELECT ENQUIRY SKILLS AMONG THE UNDERGRADUATE PHYSICS STUDENTS."

Objectives of the Study

The objectives of the present study were:

1. To compare the effectiveness of 7E Learning Cycle in teaching Physics with existing method on scores on Inquiry Skills among the Under Graduate students in Kottayam district.
2. To compare the effectiveness of 7E Learning Cycle in teaching Physics with existing method on scores on the skill of Drawing Inference among the Under Graduate students in Kottayam district.
3. To compare the effectiveness of 7E Learning Cycle in teaching Physics with existing method on scores on the skill of Hypothesizing among the Under Graduate students in Kottayam district.
4. To compare the effectiveness of 7E Learning Cycle in teaching Physics with existing method on scores on the skill of Experimenting among the Under Graduate students in Kottayam district.

Hypotheses of the study

Hypotheses formulated for the study were:

1. There is significant effect on the scores on Inquiry Skills of undergraduate Physics students taught by using 7E Learning Cycle when compared with existing method.
2. There is significant effect on the scores on the skill of Drawing Inference of undergraduate Physics students taught by using 7E Learning Cycle when compared with existing method.
3. There is significant effect on the scores on the skill of Hypothesising of undergraduate Physics students taught by using 7E Learning Cycle when compared with existing method
4. There is significant effect on the scores on the skill of Experimenting of undergraduate Physics students taught by using 7E Learning Cycle when compared with existing method.

Variables of the Study

Independent Variables

In the present study the independent variables are treatment variable, which has two levels:

1. Instruction by using 7E Learning Cycle
2. Instruction by using existing method.

Dependent Variables

Inquiry skills

The components of inquiry skills are:

a. Drawing inference
b. Hypothesizing
c. Experimenting

Methodology in Brief

The design selected for the present study was true experimental, post-test only

non-equivalent two group design. The sample included 74, first year B.Sc. Physics students. 37 Physics students were there in the experimental and control groups. Descriptive Statistics Mean and Standard Deviation and the inferential statistics ANCOVA were used for analyzing the data. The tools used in the study were:

- Test on Inquiry Skills- Developed and standardized by Joseph Celene (2008)
- Instructional Material by using Constructivist Approach- Developed by the investigator
- Instructional material by using existing method- Developed by the investigator

Test on Inquiry Skills is a test battery consists three sub-tests of ten items each - Test on Drawing Inference, Test on Hypothesizing and Test on Experimenting. The total number of items in the test battery is 30. The test provides scores for the three component skills –skill of Drawing Inference, skill of Hypothesizing, skill of Experimenting, and a single score on Inquiry Skills by adding scores for the three component skills. The maximum sore which can be gained by a subject is 30, and minimum score is zero. For each component skill, the maximum score is 10 and the minimum score is 0.The content validity and construct validity of the test were ensured by the scrutiny of subject experts and the research specialists. The validity of the test was calculated by using scores on a previous achievement test as external criteria. Validity coefficients are 0.961, 0. 793, 0.880, 0.651 (for N=100) for the test on Inquiry Skills, subtests on Drawing Inference, Hypothesizing and Experimenting respectively. Reliability of the test was calculated by using test-retest method with one month interval. The reliability coefficients were 0.814, 0.770, 0.573, 0.563 (for N=100) for the test on Inquiry Skills, subtests on Drawing Inference, Hypothesizing and Experimenting respectively.

The instructional materials for treating the experimental group with 7E Learning Cycle and the control group with existing method were prepared based on two units in B.Sc. Physics main curriculum. The units selected were Viscosity and Surface tension. The treatment was for ten hour duration each for both the experimental and control groups.

Analysis and Interpretation

Effectiveness of 7E Learning Cycle model in teaching Physics on Enquiry Skills when effect of score on pre-achievement test is removed by using ANCOVA

Table 1
Number, Mean and Standard deviation, and difference in mean scores on Inquiry skills of Experimental and control groups

Group	Number	Mean	Standard deviation	Difference in mean scores
Experimental	37	19.30	4.36	7.89
Control	37	11.41	4.96	

Table 1 shows there are 37 subjects each in both the experimental and control groups. The means score on Inquiry skills are 19.30 and 11.41 and the standard deviations are 4.36 and 4.96 for the experimental and control groups respectively. The mean difference is 7.89.

Table 2
Type III sum of squares, degrees of freedom, F-value, Level of significance and Partial Eta Squared for the scores on Inquiry skills

Variable	Type III sum of squares		Degrees of freedom	F-value	Level of significance (Probability of type I error)	Partial Eta Squared
Inquiry Skills	Between groups	951.08	1	47.88	.000	.403
	Within group	19.86	72			

Table2 reveals that the between group sum of squares for scores on inquiry skills is 951.08 and within group sum of squares is 19.86. The degrees of freedom are 1 and 72 for between group and within groups. The F-value is 47.88 which is significant at .01 level of confidence as the probability of type I error is less than <.0005. The Partial eta squared is shown as .403 which means the size of the effectiveness is 40.3%. Therefore it can be inferred that the 7E Learning Cycle in teaching Physics is effect for developing inquiry skills among undergraduate Physics students.

Effectiveness of 7E Learning Cycle model in teaching Physics on component skills of inquiry skills

The effectiveness of 7E learning cycle model in teaching Physics on each of the select component skills of inquiry was analyzed by using two tailed test of significance of difference between means for large independent groups. The details of the analysis of the data regarding each select component skills of inquiry are shown in the following tables 3, 4 and 5.

Effectiveness of 7E Learning Cycle model in teaching Physics on Skill of drawing inference

Table 3
The number, mean, standard deviation, difference in means, degrees of freedom, t-value and level of significance for the scores on skill of inferring

Variable	**Group**	**Number**	**Mean**	**Standard deviation**	**Difference in means**	**df**	**t-value**	**Level of significance**
Skill of Drawing inference	Experimental	37	6.38	1.71	2.11	72	4.89	.000
	Control	37	4.27	1.20				

From table 3 it is observed that the Means are 6.38 and 4.27 and standard deviations are 1.71and 1.20 and difference in means is 2.11 for the experimental and control groups respectively. The t-value is 4.89 with degrees of freedom 72. The level of significance (Probability of type I error) is less than .0005. So the t-value is significant at .01 level. Therefore it can be inferred that the 7E Learning Cycle in teaching Physics is effective for developing skill of inferring among undergraduate Physics students.

Effectiveness of 7E Learning Cycle model in teaching Physics on Skill of Hypothesizing

Table 4 gives the details regarding the analysis of effectiveness of 7E Learning Cycle in teaching Physics on skill of hypothesizing.

Table 4
The number, mean, standard deviation, difference in means, degrees of freedom, t-value and level of significance for the scores on skill of Hypothesizing

Variable	Group	Number	Mean	Standard deviation	Difference in means score	df	t-value	Level of significance
Skill of Hypothe-sizing	Experimental	37	6.46	1.74	2.89	72	6.47	.000
	Control	37	3.57	2.09				

Table 4 shows that Mean and standard deviations of scores on the skill of Hypothesizing for experimental group are 6.46 and 1.74 and that for the control group are 3.57 and 2.09. The difference in mean scores is 2.89. The t-value is 6.47 with degrees of freedom 72. The t-value 6.47 is significant at .01 level as the probability of type I error is less that .0005. Therefore it can be inferred that the 7E Learning Cycle in teaching Physics is effective for developing skill of Hypothesizing among undergraduate Physics students.

Effectiveness of 7E Learning Cycle model in teaching Physics on Skill of Experimenting

Table 5 gives the details of the analysis of the data and the result regarding the effectiveness of 7E Learning Cycle in teaching Physics on skill of experimenting.

Table 5
The number, mean, standard deviation, difference in means, degrees of freedom, t-value and level of significance for the scores on skill of inferring

Variable	Group	Number	Mean	Standard deviation	Difference in means score	df	t-value	Level of significance
Skill of Experim-enting	Experimental	37	6.54	1.98	3.03	72	6.72	.000
	Control	37	3.51	1.89				

It is observed from Table 5 that the mean and standard deviation of scores on skill of experimenting for the experimental group is 6.54 and 1.98 respectively. The mean and standard deviations of control group are 3.51 and 1.89 respectively. The difference means are 3.03. the t-value is 6.72 with degrees of freedom 72. The t-value is significant at .01 level as the probability of type I error is less that .0005. Therefore it can be inferred that the 7E Learning Cycle in teaching Physics is effective for developing skill of experimenting among undergraduate Physics students.

Findings

1. 7E Learning Cycle in teaching Physics is effective for developing Inquiry Skills when compared with existing method among the Under graduate students in Kottayam district
2. 7E Learning Cycle in teaching Physics is effective for developing skill of Drawing Inference when compared with existing method among the Under graduate students in Kottayam district.
3. 7E Learning Cycle in teaching Physics is effective on developing skill of Hypothesizing when compared with existing method among the Under graduate students in Kottayam district
4. 7E Learning Cycle in teaching Physics is effective on developing skill of Experimenting when compared with existing method among the Under graduate students in Kottayam district.

Conclusion

The study reveals that 7E Learning Cycle is effective in developing inquiry skills among undergraduate students. This model can be adopted by the science teachers from secondary level onwards for developing process skills, inquiry skills and thinking skills among students. The adoption of this method for class room teaching will equip the students with skills for conducting independent inquiry in all subjects. The main difficulty of applying this method is that the teachers are not familiar with this method and the dearth of teaching learning materials organized in this way. So it is high time to develop learning materials to introduce 7E Learning Cycle and the like models for inquiry teaching and learning in all streams of discipline at all levels. . The instruction focused on these will result in high level reasoning ability and the skills in conducting independent inquiry which in turn enhance the knowledge generation process.

References

Arora, Pankaj (2006). *Constructivism and pupil evaluation national council of educational research and training,* New Delhi 16 – 26.

Bentley, M, Ebert II S. Edward and Ebert Christine (2007). *Teaching constructivist Science : K-8* . CA: Corwin Press.

Carey, S. (1991). Knowledge acquisition: Enrichment or conceptual change? In Carey, S. &Gelman, E. (Eds.) *The epigenesis of mind*, Hillsdale, NJ, Erlbaum, pp. 257-291.

Arthur A. Carin and Joel E. Bass (2000). *Teaching Science as Inquiry.* CA: Prentice Hall

Constructivism Pros and cons. http://www.kevinfitzmaurice.com/thinkconstructivism_ procon.htm

Constructivist Teaching and Learning Models. Retrieved on 5th November 2007.

www.ncrel.org

Das Kalpataru et al (2007). *Self instructional study of: structure of atoms: for ninth* grade students MERI journal of education management education and research institute 109-115. New Delhi.

Driver R., & Erickson, G. (1983). Theories-in-Action: Some theoretical and empirical issues in the study of students' conceptual frameworks in science. *Studies in Science Education, 10,* 37-60.

Driver, R., Guesne, E., & Tiberghien, A. (1985). *children's ideas in science.* Philadelphia, PA: Open University Press.

Driver, R. (1983). *The pupil as scientist?* Milton Keynes, England: The Open University Press.

Eisenkraft (2003). *5E model Expanding*. Retrieved on 6th November 2008, http://science.education.nih.gov/houseofreps.

Gulati, HR (1985). *Fundamentals of General Properties of matter*, R Chand & Co., New Delhi.

Hewson, P. & Hewson, M. (1992). *The status of students conceptions.* In Duit, R., Goldberg, F. & Niedderer (Eds.) Research in Physics Learning: Theoretical issues and empirical studies, Kiel, Germany: IPN, pp 59-73.

James, M et. al. (2008). *Social constructivist teaching methods is Australian Universities – Reported uptake and perceived learning effects*, A Study of Lectures Retrieved on 13th September 2008 http://www.eric.ed.gov/ERIC webportal/Home.Portal

Janet and Kolodner(2002). *Facilitating the Learning of Design practices : Lessons learned from an inquiry into science Education*. Retrieved on 05th December 2008 http://www.eric.ed.gov/ERIC webportal/Home.Portal

Jenson and jacqulyn (2004). *Application of Constructivism to teacher education:* Retrieved on 06th December 2008 http://www.eric.ed.gov/ERIC webportal/Home.Portal

John, Sagy (2007). *Constructivism and learner centered approach in education,:* Edutracks, Neelkamal Publications Private Limited, Hydrabad . (13-15)

Khader M.A. (2005). *Learner as a constructor of knowledge in an enabiligh context,*

Lawson, A., Abraham, M. & Renner, J.(1989)A theory of instruction.: Using the Learning Cycle to teach Science concepts and thinking skills. (monograph No.1) Manhattan, KS: National Association for research in Science teaching.

Llewellyn, D (2007). *Inquire with in implementing inquiry – based science standards in grades 3- 8 second edition:* California Corwin press, Sage Publications Company.

Lorenzo, Moreno (2007). *Methodological Educational Proposal based on constructivism and Collaborative learning theories*.Retrieved on 06th November 2008, http://www.eric.ed.gov/ERIC webportal/Home.Portal

Lorenzo, Moreno (2007). *Methodological Educational Proposal based on constructivism and Collaborative learning theories*.

Maria, et. al. (2008) *what need to develop in the development of inquiry skills* Retrieved on 26th October 2008 http://www.eric.ed.gov/ERIC webportal/Home.Portal

Marton, F. (1990) The phenomenography of learning - a qualitative approach to educational research and some of its implications for didactics. In Mandl, H., De Corte, E., Bennet, N. &Friedrich, H.F. (Eds.) *Learning and Instruction*, Pergamon Press, Vol. 2.1, pp. 601-616.

Mary Margaret and Caprao (2002) *Defining Constructivism : Its influence on the Problem solving skills students:* Retrieved on 01th December 2008 ,http://www.eric.ed.gov/ ERIC webportal/Home.Portal.

Osborne, R.J. & Wittrock, M.C. (1983). Learning science: A generative process. Science Education, 67, 489-508.

Osborne, R.J. & Wittrock, M.C. (1985). The generative learning model and its implication for science education. Studies in Science Education, 12, 59-87.

Piburn Michael and Baker R. Dale (1991). *Process skills acquisition, cognitive growth, and attitude change of ninth grade students in a scientific literacy course*, Journal of Research in Science teaching, 28,5,1991.

Rickers, et. al. (2008). *Effect of Constructivist Learning Environments:* Retrieved o n 06th December 2008 http:// www. eric.ed.gov/ ERICwebportal/Home.Portal

Scott, P., Asoko, H. & Driver, R. (1992) Teaching for conceptual change: A review of strategies.

Srivastava, K (2008). *Traditional and constructivist educational perspectives Indian journal of teacher education:* Anwestika national council for teacher education, New Delhi.(25-27)

Suping and Shanah (2004). *Conceptual Change among Students in Science.* Retrieved on 06th November 2008, http://www.Eric digests.org/2004-3/change.html

Vosniadou, S. (1994) Capturing and modelling the process of conceptual change, *Learningand Instruction*, Vol. 4, pp. 45-69.

Zainuddin, Roquiya (2008). *Pedagogy in the light of constructivism Indian journal of teacher education.* Anweshika, National council for teacher education New Delhi, 72, 74 – 77.

Educational Extracts
Vol. I Issue I January 2013
pp. 51-56

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

EFFECTIVENESS OF KOLB'S MODEL OF EXPERIENTIAL LEARNING ON ACHIEVEMENT IN MATHEMATICS

Dr.Varghese K. Cheriyan*

Abstract

In the modern mathematics movement, the old mathematics curriculum was replaced by the new curriculum in the form of new school mathematics text-books. But little attention was given the method of transacting the new knowledge to the classroom. As a consequence, teachers simply taught modern mathematics in the same way that they had taught the old mathematics. Achievement in mathematics is significantly lower than that of other subjects. In terms of learning, experiential learning can be described as a process by which the experience of the learner is reflected up on, and from this emerge new insights or learning. Experiential learning theory posits that learning is the major determinant of human development and that how individuals learning shape the course of their personal development. Kolb has taken the gauntlet in support of experiential learning stating that learning is multi-dimensional process. Kolb developed the most established model of experiential learning. Kolb's theory of experiential learning provides a model for the process of knowledge acquisition and posits a typology of individual learning styles. Kolb's typology describes individual learning style in terms of both the preferred modality for "apprehensions" of new information and the preferred modality for processing new information. The study was conducted using experimental design. Findings of the study revealed that the total achievement in Mathematics of students taught using Kolb's Experiential Learning Model is significantly higher than that of those taught using Activity Oriented Method.

Key Words: *Experiential learning, Achievement, Learning process, Concrete experience, Reflective observation, Abstract conceptualization, Active experimentation, etc*

Introduction

An important part of the learning process is that learners reflect on and talk about their activities and also set their own goals and means of assessment. They control their own learning process, and they lead the way by reflecting on their experiences. The process of learning has been a source of amazement, fascination, and study for centuries. Investigators have continually

* *Principal, St. Joseph's Training College, Mannanam, Kerala. E-mail: mevarathvc@yahoo.co.uk*

attempted to describe both animal and human learning in a wide variety of interactions and contexts. More recently, large number of actual experiments has been conducted and numerous theories have emerged, many describing in minute detail with respect to the learner and the manner in which learning can be enhanced. Others have chosen to adopt a comparatively broad interpretation of the learner and have satisfied themselves with a rather general description of the learner as a passive recipient in the learning process. Others have contented that children must be actively involved both mentally and physically (Post, 1992).

The very aim of Mathematics education has to be viewed differently. It should no longer be taken as concerned primarily of imparting knowledge, but a process of awakening curiosity, development of proper interest and attitude. There are many means of arousing and maintaining interest. One of the ways is through experiencing. Traditional Mathematics teaching is based on an authoritative figure (usually the teacher) giving out information in a non-contextual way without relevance to the life of most of the students. Learning is based on remembering and correctly applying often complex and unconnected algorithms. In Mathematics classrooms the answers are always known and this offers students little opportunity for creativity and discovery. According to Simmons (1993), Good Mathematics teaching should led across in to a number of activities designed to build confidence, improve awareness of teaching situations and strategies, higher knowledge of the processes involved in learning and doing mathematics, help to gain experience of available resources. For the last 25 years, research has been focused on teaching and learning in mathematics classrooms (Tanner and Jones, 1999). Research in effective teaching supports the use of a variety of teaching strategies (Brophy & Good, 1986). Constructivism has emerged as one of the main philosophies of mathematics education (Ernest, 1991; Von Glasersfeld, 1991)

Experiential Learning Theory

In terms of learning, experiential learning can be described as a process by which the experience of the learner is reflected up on, and from this emerge new insights or learning. Experiential Learning Theory defines learning as "the process where by knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984). The experiential learning theory (Kolb, 1984), is built on six propositions.

- Learning is best conceived as a process, not in terms of outcomes.
- All learning is relearning.
- Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.
- Learning is holistic process of adaptation to the world.
- Learning results from synergetic transactions between the person and the environment.
- Learning is the process of creating knowledge.

David A. Kolb (1971) developed the most established model of experiential

learning and in his model, the process begins with an experience (concrete experience), followed by reflection (reflective observation). The reflection is then assimilated into a theory (abstract conceptualization) and finally these new hypotheses are tested in new situations (active experimentation). The model is a recurring cycle within which the learner tests new concepts and modifies as a result of the reflection and conceptualization.

Need and significance

In the modern mathematics movement, the old mathematics curriculum was replaced by the new curriculum in the form of new school mathematics text-books, and institutes were held for mathematics teachers to prepare them to teach the concepts and principles of the new curriculum. But little attention was given, in either the institutes or the new textbooks, to the nature of mathematical knowledge that would influence the practice of mathematics education. As a consequence, teachers simply taught modern mathematics in the same way that they had taught the old mathematics. Achievement in mathematics of students is significantly lower than other subjects. Recent assessments have indicated that students in several Asian countries such as Japan, Hong Kong, Korea and Singapore have intended to score above international averages (Kelly, Mullis & Martin, 2000).

Kolb's (1984) theory of experiential learning provides a model for the process of knowledge acquisition. A careful review conducted by the investigator of the earlier studies in India and abroad could find that not much has been done in Kolb's experiential learning on achievement in mathematics. Thus the investigator made concerted efforts to study the effect of Kolb's experiential learning model on achievement in mathematics of students at secondary level.

Objectives of the Study

1. To find out the achievement in mathematics of students taught using Kolb's Experiential Learning Model and Activity Oriented Method.
2. To compare the achievement in mathematics of students taught using Kolb's Experiential Learning Model and Activity Oriented Method.
3. To compare the objective-wise achievement in mathematics of students taught using Kolb's Experiential Learning Model and Activity Oriented Method.

Hypotheses of the Study

The following hypotheses were formulated.

1. The achievement in mathematics of students taught using Kolb's Experiential Learning Model is significantly higher than that of those taught using Activity Oriented Method.
2. The objective wise achievement in mathematics of students taught using Kolb's Experiential Learning Model is significantly higher than that of those taught using Activity Oriented Method.

Methodology in Brief

The study was conducted by using experimental method and the design selected

was pre test-post test non-equivalent group design. For the experimental study, four schools were selected from Kottayam district, giving due weightage to gender, and type of school. The sample for the experiment consisted of 326 students of standard IX from eight divisions of the four secondary schools (two divisions from each school) selected for the study. Four divisions (one from each school) were considered as experimental group and the other four divisions (one from each school) were considered as the control group. Both the experimental and control group consisted of 163 students each. These students were selected by considering the gender and type of school. The experimental group was taught using the Kolb's Experiential learning Model and the control group was taught using Activity Oriented Method. The achievement in mathematics was measured using an achievement test in Mathematics prepared by the investigator.

Tools Used

The most important tools used for the study are

(1) Lesson Transcripts Based on Kolb's Experiential Learning Model of teaching (prepared by the Investigator)

(2) Lesson Transcripts Based on Activity Oriented Method of teaching (prepared by the Investigator).

(3) Achievement Test in Mathematics (prepared by the Investigator)

Analysis and Interpretations

The scores on achievement in mathematics of students in the experimental and control groups were compared to find out the effectiveness of Kolb's Experiential Learning Model on achievement in mathematics.

1. When compared the post-test scores of the experimental and control groups with respect to Mathematics Achievement (t = 16.17), it was revealed that the experimental and control group differ significantly at 0.01 level. The't' value and the mean score reveal that the Kolb's Experiential Learning Model (KEM) is more effective than the Activity Oriented Method (AOM). The't' value (19.96) and the mean difference shows a similar findings with respect to gain mathematics achievement.

Since the sample selected for the present study was intact classroom groups from different institutions the scores were analysed using the technique of Analysis of Co-variance (ANCOVA).

Table 1

Summary of Analysis of Variance of the Pre-test and Post-test Mathematics Achievement Scores of the KEM and AOM Groups

Source of variation	df	SSx	SSy	MSx	MSy
among means	1	3.345	2242.4	3.35	2242.4
within groups	324	683.59	2779.6	2.11	8.58
Total	325	686.94	5021.63		

Fx 1.59 Fy 261.35

The obtained value of Fx is 1.59, not significant at 0.05 level and the Fy value is 261.35, which is significant at 0.01 level. This shows that the groups differ significantly on mathematics achievement in the post-test scores.

Table 2

Summary of Analysis of Co-variance of the Pre-test and Post-test Scores on Mathematics Achievement of the Experimental (KEM) and Control (AOM) Groups

Source ofvariation	df	SSx	SSy	SSxy	SSyx	MSyx	SDyx
amongmeans	1	3.345	2242.403	86.55	2020.91	2020.91	
withingroups	324	683.595	2779.227	856.45	1706.58	5.27	2.29
Total	325	686.94	5021.63				

Fy.x 383.48

Since the Fyx ratio is greater than the Table value, it is significant (Fyx=383.48, $p < 0.01$). The significant ratio for the adjusted post-test scores show that the final mean scores of students in the experimental group and in the control group differ significantly after they were adjusted for the difference in the pre-test scores. From the analysis of the total achievement scores of the students in the experimental and control group using the statistical technique of Analysis of Co-variance, it is clear that learning through the application of Kolb's Experiential Learning Models is more effective than the Activity Oriented Method with respect to total achievement in mathematics.

3. In order to get a more comprehensive view of the effectiveness of the selected strategy, the analysis with respect to the levels of objectives, namely Computation, Comprehension, Application, and Analysis are further dealt with.

The mean gain scores of students in mathematics achievement with respect to the different objectives in experimental and control groups were compared and the data and results are given in Table 3.

Table 3

Data and Result of Test of Significance of Difference between the Mean Gain Scores with respect to Objective wise Mathematics Achievement of Students in Experimental (KEM) and Control (AOM) Groups

Objectives	Groups	N	Mean	S.D	't' value	Level of significance
Computation	Experimental(KEM)	163	2.20	0.75	5.15	P < 0.01
	Control(AOM)	163	1.74	0.86		
Comprehension	Experimental(KEM)	163	3.34	0.92	8.64	P < 0.01
	Control(AOM)	163	2.44	0.96		
Application	Experimental(KEM)	163	4.12	1.34	15.66	P < 0.01
	Control(AOM)	163	2.04	1.04		
Analysis	Experimental(KEM)	163	3.31	1.23	12.49	P < 0.01
	Control(AOM)	163	1.71	1.09		

The gain scores obtained with respect to different levels of objectives by each student in both Kolb's Experiential Learning Model and Activity Oriented Method groups were analysed. The obtained result revealed that in objectives Computation (t=5.15), Comprehension (t=8.64), Application (t=15.66) and in Analysis (t=12.49) the Kolb's Experiential Learning model is more effective than Activity Oriented Method with respect to Mathematics achievement.

Conclusion

The major conclusion emerged from the study is that the achievement in mathematics of students taught using Kolb's Experiential Learning Model is significantly higher than that of those taught using Activity Oriented Method. The objective-wise (Computation, Comprehension, Application, and Analysis) achievement in mathematics of students taught using Kolb's Experiential Learning Model is significantly higher than that of those taught using Activity Oriented Method. The Kolb's Experiential Learning Model is found better than the existing Activity Oriented Method with respect to total achievement and objective-wise achievement.

Reference

Post, T.R. (ed; 1992). *Teaching mathematics in grades K-8.* Boston: Allyn and Bacon.

Simmons, M. (1993). *The effective teaching of mathematics.* London: Longman.

Tanner, H., & Jones, S. (2000). Scaffolding for success: reflective discourse and the effective teaching and mathematics thinking skills. *Research on Mathematics Education, 2(1), 19-32.*

Brophy, J. E., & Good, T.L (1986). *Teacher behaviour and student achievement. Handbook of Research on Merlin Teaching*. New York: Macmillan, pp 328-375.

Ernest, P. (1991). *The philosophy of mathematics education.* London: Falmer Press.

Von Glasersfeld, E. (1995). *Radical constructivism: A way of knowing and learning.* London: Routledge Falmer Press.

Kolb, D. A (1984). *Experiential learning: experience as the source of learning and development*. Englewood cliffs, NJ: Prentice –Hall.

Kolb, D.A. (1971). *Organizational psychology: An experiential approach*. Englewood Cliffs, New Jersey: Prentice-Hall.

Kelly, D.L., Mullis, I.V.S., & Martin, M.O. (2000). *Profiles of student achievement in mathematics at the TIMSS International benchmarks: U.S. performance and standards in an international context*. Chestnut Hill MA: TIMSS International Study Centre, Boston College.

Educational Extracts
Vol. I Issue I January 2013
pp. 57-67

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

SELF-CONCEPT, CREATIVITY AND ACADEMIC ACHIEVEMENT OF SECONDARY LEVEL TEACHER TRAINEES

Dr. T.M. Mollykutty*

Abstract

The present study deals with self-concept, Creativity and academic Achievement of Secondary level Teacher Trainees. The study measures the self-concept, Creativity and academic Achievement. The relationship between self-concept, Creativity and academic Achievement are found to be positive and statistically significant. Gender, locale and subject of study are not found to influence self-concept, Creativity and academic Achievement of Secondary level Teacher Trainees.

Key Words: *Self-Concept, Creativity, Academic Achievement, Secondary level Teacher Trainees.*

Introduction

Education plays a key role in shaping, reforming and reconstructing the society from time to time. Education has been recognized and regarded as the potent instrument of social reformation, social transformation and social reconstruction in modern society. Dr. A.P.J. Abdul Kalam is of opinion that education system should be made creative throughout and full employment should be provided to all. Proper education will help to develop a sense of dignity and self- respect among our youth. According to Guilford (1982), of all the qualities man possesses, that contribute to his creative thinking, have been most important for his well being and advancement In order to perform the duties and responsibilities individual need a high self-concept. Teacher's Self- concept together with creativity will influence students and this will help in increasing the quality of education. So the future teachers should have high self-concept and high creativity.

Self- concept

Self-concept refers to the evaluative judgment people make of themselves in specific domains, such as academic performance, social interactions, athletic performance, and physical appearance (Cown, 2012). Over the years, researchers have constantly found a moderately positive relationship between measures of self-

* *Associate Professor, St. Thomas College of Teacher Education, Pala, Kottayam, Kerala. E-mail: mollykuttytm@rediffmail.com*

concept and achievement. Students who score relatively high on measures of self-concept tend to have higher than average grades. But correlation does not imply causation. The fact that students with high self-concept scores tend to have high grades are not sufficient grounds for concluding that high self-concept causes high achievement. It is just as plausible that high achievement causes increased self-concept for that increase in both variables are due to the influence of a third variable. Frequent success and reward will help to form a positive self- concept.

Creativity

Creativity is ability to think about something in novel and unusual ways and come up with unique solutions to problems. (Husain, 2012).J.P Guilford (1967) distinguish between convergent thinking which produces one correct answer and is characteristic of the kind of thinking required on conventional intelligence tests and divergent thinking which produces many answers to the same question and is more characteristic of creativity .

Intelligence and creativity are related. Highly creative students are quite intelligent but many highly intelligent students are not very creative. (Sternberg 2002) Teachers should recognize student's creativity in the early years. The atmosphere of school and classroom may influence the creativity of students. School environment that encourage independent work, internal motivation, fostering flexible and playful thinking and introducing students to creative people, etc. encourages creativity. By promoting creativity, teachers can give pupils the opportunity to discover and pursue their interests and talents, through which they can enrich their lives and make a valuable contribution to the society (Santrock, 2008).There are many things that hinder creative thinking. Stress, routine way of doing things,, rules and barriers, quick production of results, fear, self-criticism, lack of confidence, etc. (Prakash 2007).

Academic Achievement

Achievement can play significant role in the educational process. Standardized achievement tests have the advantage of objectivity, uniformity and efficiency. Researchers have shown that achievement and self-concept have reciprocal effects. Prior achievement affects children's self-concept. But the current strength of self-concept influences subsequent achievement. Poor achievement has a significant positive relationship with subsequent achievement, and prior self-concept has a significant positive relationship with subsequent self-concept.

Need and significance of the study

The philosopher and educationist Krishnamurti (2003) talks of two instruments available to the human being-the instrument of knowledge which enables him to gain mastery over technical skills, and intelligence which is born of observation and self- knowing. It is necessary to have a sharp, clear, analytical and precise mind and critical awareness of the inner and outer world. The destiny of India being shaped by teachers at different levels; the efficiency, skills, attitudes, creativity, etc. of the teaching community is crucial. The future teachers should be equipped with the necessary resources. Several studies have conducted in areas of Self- concept, creativity and

academic achievement. (Dhanya (2010); Manju (2008); Rani (2011); Magi (2006); Sumesh (2002); Neufield (1994); Kusuma (2004); Khiru (1971); Kalia (1985); Alan (2009) Faux (1992); Annie (2007); etc...Findings of these studies revealed positive relationship between self-concept, Creativity and academic Achievement. Self-concept, Creativity and academic Achievement of secondary level teacher trainees is not yet studied. So this study is an attempt to look into the self-concept, creativity and academic achievement of future teachers.

Objectives of the study

1. To find out the Self-concept of Secondary level Teacher Trainees
2. To find out the Creativity of Secondary level Teacher Trainees
3. To find out the Academic Achievement of Secondary level Teacher Trainees
4. To find out the difference in Self-concept of teacher Trainees based on Gender, Type of Locality and Subject of Study.
5. To find out the difference in Creativity of teacher Trainees based on Gender, Type of Locality and Subject of Study.
6. To find out the difference in Academic Achievement of teacher Trainees based on Gender, Type of Locality and Subject of Study.
7. To find out the relationship between Self-concept and Creativity of Secondary level Teacher Trainees.
8. To find out the relationship between Self-concept and Academic Achievement of Secondary level Teacher Trainees.
9. To find out the relationship between Creativity and Academic Achievement of Secondary level Teacher Trainees.

Hypotheses

1. There will be significant difference between the mean scores of Self-concept of teacher Trainees based on Gender, Type of Locality and Subject of Study.
2. There will be significant difference between the mean scores of Creativity of teacher Trainees based on Gender, Type of Locality and Subject of Study.
3. There will be significant difference between the mean scores of Academic Achievement of teacher Trainees based on Gender, Type of Locality and Subject of Study.
4. There will be a significant relationship between Self-concept and Creativity of Secondary level Teacher Trainees.
5. There will be a significant relationship between Self-concept and Academic Achievement of Secondary level Teacher Trainees.
6. There will be a significant relationship between Creativity and Academic Achievement of Secondary level Teacher Trainees.

Methodology

A descriptive survey method is used to collect data. Achievement scores were taken from institution records.142 secondary

level teacher trainees form the sample of the study. Small samples can indeed accurately reflect the population, so that findings obtained from the sample can be generalized to the population.

The tools used were: Self-concept Inventory (constructed and standardized by Dr. Therese Kootiyaniyil) and Verbal Test on Creativity (Baquer Mehdi). The following statistical techniques were used.

1. *Mean*
2. *Standard Deviation*
3. *t test*
4. *Pearson's Product Moment Correlation*

Data Collection

In order to collect data on self-concept the investigator administered the Self-concept Inventory to Secondary level Teacher Trainees. The maximum possible score is 150 and the minimum score is Zero. The total score measures the self-concept of the individual. A Verbal Test on Creativity was administered to find out the Creativity of Secondary level Teacher Trainees. The creativity score is commuted as per the manual. Entry behavior of Secondary level Teacher Trainees is taken as Academic achievement score. The collected data were analysed using descriptive and inferential statistics.

Analysis and Interpretation

The Mean and SD of Self-concept, Creativity and Academic Achievement of Secondary level Teacher Trainees is presented in Table No. 1.

Table 1
Mean and SD of Self-concept, Creativity and Achievement of Secondary level Teacher Trainees

Variable	Mean	Std. Deviation	N
Self-concept	107.27	17.20	142
Creativity	98.34	20.61	142
Achievement	70.99	11.00	142

From the above table it is seen that mean for Self-concept is 107.27 and standard deviation is 17.20 . It is seen that out of 142 sample 47.7 per cent is having low self-concept, and 52.3 per cent is having high self-concept. . Regarding Creativity 51.4 per cent is having low creativity and 48.6 per cent is having high creativity 50.7 percent of the sample is having low academic achievement and 49.3 per cent is having high academic achievement.

To find out the significance of difference between Mean of Self- concept, creativity and academic achievement of Secondary level Teacher Trainees based on Gender *t* test is applied.

Table 2

Data and test of significance of difference between Mean of Self-concept, creativity and academic achievement of Secondary level Teacher Trainees based on Gender

Variable	Gender	N	Mean	SD	Std. Error Mean	*t*value	Level of significance
Self Concept	Male	27	100.78	23.74	4.57	2.208	Not significant
	Female	115	108.79	14.10	1.40		
Creativity	Male	27	91.74	20.93	4.03	1.862	Not significant
	Female	115	99.88	20.32	1.89		
Achievement	Male	27	66.65	11.87	2.28	2.306	Not significant
	Female	115	71.10	10.59	0.99		

From the table it is clear that there is no significant difference between male and female teacher trainees in self-concept, creativity and academic achievement.

To test the significance of difference between Means of Self- concept, creativity and academic achievement of Secondary level Teacher Trainees based on Locale the *t* test is applied. Table No. 3 shows that there is no significant difference in self-concept, Creativity and Academic Achievement based on locale.

Table 3

Data and test of significance of difference between Mean of Self-concept, creativity and academic achievement of Secondary level Teacher Trainees based on Locale

Variable	Locale	N	Mean	SD	Std. Error Mean	*t*value	Level of significance
Self-concept	Rural	105	107.67	16.32	1.59	0.71	Not significant
	Urban	36	105.33	19.35	3.22		
Creativity	Rural	105	100.44	19.12	1.87	2.33	Not significant
	Urban	36	91.33	23.13	3.85		
Achievement	Rural	105	71.87	10.75	1.05	1.60	Not significant
	Urban	36	68.48	11.62	1.94		

To find out the relationship between Self- concept, Creativity and Academic achievement of Secondary level Teacher Trainees Pearson's Product Moment Correlation is computed and the results are presented in Table No.4.

Table 4
Relationship between Self- concept, Creativity and Academic achievement of Secondary level Teacher Trainees

Variable	Number	Self- concept	Creativity	Achievement
Self- concept	142	1	0.425**	0.237**
Creativity	142	0.425**	1	0.471**
Achievement	142	0.237**	0.471**	1

**. Correlation is significant at the 0.01 level (2-tailed).

From the table it is clear that there is significant correlation between Self-concept, Creativity and Academic Achievement of Secondary level Teacher Trainees.

Further, Analysis of Variance is calculated in order to find out if there is difference in self-concept among secondary level teacher trainees.

Table 5
Difference in Self-concept among Secondary level Teacher Trainees

Dependent Variable: Self- concept

Source	Sum of Squares	df	Mean Square	F	Sig.
Between subjects	2104.39	5	420.88	1.45	0.21
Within subjects	39607.44	136	291.23		
Total	41711.83	141			

Results in Table No.5 shows that the F value for Self-concept is not significant. So it is inferred that there is no significant difference in self-concept among secondary level teacher trainees.

Analysis of Variance is calculated in order to find out if there is difference in Creativity among secondary level teacher trainees.

Table 6
Difference in Creativity among Secondary level Teacher Trainees

Dependent Variable: Creativity

Source	Sum of Squares	df	Mean Square	F	Sig.
Between subjects	8450.02	5	1690.00	4.47	0.00
Within subjects	51455.43	136	378.35		
Total	59905.44	141			

Results in Table No.6 shows that the F value for Creativity is significant. So it is inferred that there is significant difference in Creativity among secondary level teacher trainees.

Analysis of Variance is calculated in order to find out if there is difference in Academic Achievement among secondary level teacher trainees.

Table 7

Difference in Academic Achievement among Secondary level Teacher Trainees

Dependent Variable: Achievement

Source	Sum of Squares	df	Mean Square	F	Sig.
Between subjects	4247.16	5	849.43	9.01	0.00
Within subjects	12822.84	136	94.29		
Total	17070.01	141			

Results in Table No.7 shows that the F value for Academic Achievement is significant. So it is inferred that there is significant difference in Academic Achievement among secondary level teacher trainees.

Post hoc (Scheffe) comparison is used for identifying the specific groups which differ significantly in Creativity and the details are shown in Table No.8.

Table 8

Details of Post hoc Test for Creativity among Secondary level Teacher Trainees

Dependent Variable: Creativity (Scheffe)

(I) subject	(J) subject	Mean Difference (I-J)	Std. Error	Sig.
Commerce	English	1.72	6.07	1.00
	Mathematics	11.97	6.11	0.57
	Natural Science	2.17	6.11	1.00
	Physical Science	9.15	6.49	0.85
	Social Science	10.82	5.90	0.65
English	Commerce	1.72	6.07	1.00
	Mathematics	10.25	5.45	0.62
	Natural Science	0.45	5.45	1.00
	Physical Science	7.43	5.87	0.90
	Social Science	12.54	5.21	0.33
Mathematics	Commerce	11.97	6.11	0.57
	English	10.25	5.45	0.62
	Natural Science	9.80	5.50	0.67
	Physical Science	2.82	5.92	0.10
	Social Science	22.79	5.27	0.00*

Natural Science	Commerce	2.17	6.11	1.00
	English	4.52	5.45	1.00
	Mathematics	9.80	5.50	0.67
	Physical Science	6.98	5.92	0.92
	Social Science	12.99	5.27	0.30
Physical Science	Commerce	9.15	6.49	0.85
	English	7.43	5.87	0.90
	Mathematics	2.82	5.92	0.10
	Natural Science	6.98	5.92	0.92
	Social Science	19.97	5.71	0.37
Social Science	Commerce	10.82	5.90	0.65
	English	12.54	5.21	0.33
	Mathematics	22.79	5.27	0.00*
	Natural Science	12.99	5.27	0.30
	Physical Science	19.97	5.70	0.04*

Based on observed means.

The error term is Mean Square (Error) = 378.349

* The mean difference is significant at the 0.05 level.

From table No.8 we can see the difference in creativity is significant between Mathematics and Social science, and between physical Science and Social Science.

Post hoc (Scheffe) comparison is used for identifying the specific groups which differ significantly in Academic Achievement and the details are shown in Table No.9.

Table 9

Details of Post hoc Test for Academic Achievement among Secondary level Teacher Trainees

(I) subject	**(J) subject**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**
Commerce	English	2.77	3.03	0.97
	Mathematics	6.83	3.05	0.42
	Natural Science	3.86	3.052	0.90
	Physical Science	8.03	3.24	0.30
	Social Science	6.89	2.95	0.37

English	Commerce	2.77	3.03	0.97
	Mathematics	9.60*	3.03	0.97
	Natural Science	6.63	2.72	0.32
	Physical Science	10.80*	2.72	0.32
	Social Science	4.12	2.60	0.77
Mathematics	Commerce	6.83	3.05	0.42
	English	9.60*	2.72	0.03
	Natural Science	2.97	2.75	0.95
	Physical Science	1.20	2.95	0.10
	Social Science	13.72*	2.63	0.00
Natural Science	Commerce	3.86	3.05	0.90
	English	6.63	2.72	0.32
	Mathematics	2.97	2.75	0.95
	Physical Science	4.17	2.95	0.85
	Social Science	10.75*	2.63	0.00
Physical Science	Commerce	8.03	3.24	0.30
	English	10.80*	2.93	0.23
	Mathematics	1.20	2.95	0.10
	Natural Science	4.17	2.95	0.85
	Social Science	14.92*	2.85	0.85
Social Science	Commerce	6.89	2.95	0.37
	English	4.12	2.60	0.77
	Mathematics	13.12*	2.60	0.00
	Natural Science	10.75*	2.63	0.00
	Physical Science	14.92*	2.85	0.00

Dependent Variable: achievement (Scheffe)

Based on observed means.

The error term is Mean Square(Error) = 94.286.

* The mean difference is significant at the 0.05 level

From table No.9 we can see the difference in Academic Achievement is

significant between Mathematics and Social science; between physical Science and Social Science., and Natural Science and Social Science.

There is significant difference in Academic Achievement between English and Mathematics and English and Physical Science

Major Findings of the study

The major findings of the study are:

1. The self-concept of majority of secondary level teacher trainees is high.
2. There is no significant difference in Self-concept between rural and urban trainees, between male and female trainees and between trainees of different subjects of study.
3. The creativity of secondary level teacher trainees is low.
4. There is no significant difference in creativity, between rural and urban trainees ; between male and female trainees and trainees of different subjects of study.
5. The academic achievement of secondary level teacher trainees is low.
6. There is no significant difference in Academic Achievement between rural and urban trainees; between male and female trainees and trainees of different subjects of study.
7. There is significant relationship between self-concept and creativity.
8. There is significant .relationship between self-concept and academic achievement.
9. There is significant relationship between creativity and academic achievement.

Discussion

The present study reveals that the self - concept, and Creativity of secondary level teacher trainees is not high. Being self-concept, and Creativity the determining factors of one's personality the future teachers should have high self-concept and creativity. Earlier studies have shown that there is high significant relationship between self-concept, Creativity and Academic Achievement. It is proved true for secondary level teacher trainees also. Another interesting finding is that there is discipline - wise difference in Creativity.

References

Aron, Arthur, et.al. (2012). Statistics for Psychology.(4th edition) Delhi. Pearson Education. Inc.

Husain, Akbar. (2012). Psychological Testing. Delhi. Dorling Kindersley (India)Pvt. Ltd.

Bogdan,Robert,C.& Biklen Sari Knopp. (2007). Qualitative Research for Education. New Delhi. PHI Learning Pvt. Ltd.

Charles , CM & Mertler Craig, A. (2012). Introduction to Educational Research. Delhi. Dorling Kindersley(India)Pvt. Ltd.

Snowman, Jack &Mc Cown, Rick. (2012). Psychology Applied to Teaching. Delhi. Cengage Learning India Pvt.Ltd.

Anastasi, Anne & Urbina Susana. (2010). Psychological Testing. New Delhi.PHI Learning Pvt. Ltd.

Barsalou, L W in John Santrock. (2008). Educational Psychology. Tata McGraw Hill,New Delhi.

Muijs, Daniel and Reynolds, David (2005) Effective Teaching : Evidence and Practice .Sage Publications. New Delhi.

Prakash, Vijoy. (2007). Creative Learning. Viva Books Pvt. Ltd. New Delhi.

Santrock, W John. (2001). Educational Psychology. Tata Mac Graw Hill Co. New Delhi.

Krishnamurti, Jiddu. (2003). On Education. Krishnamurti Foundation India. Chennai.

Mehdi, Baqer. (1973). Verbal Test of Creative Thinking. Jawad Printing Works. Aligarh.

Kuttiyaniyil, Therese. (2004).Self- concept Inventory.

Kalam, Abdul APJ. (1998). India 2020.A Mission for the new Millennium. Penguin Books. New Delhi.

Annie, K Jacob. (2007). Relationship between creativity and self- concept.Edutracks, 7(2)25.

Manju, A. (2008). Emotional Intelligence, self-concept and achievement of undergraduate student teachers in Kottayam District.

Kalia, Ashok K. (1985). Creativity correlates of Intelligence, academic achievement and extraversion and neuroticism. Journal of Educational Research and Extension.21, 214-222.

Khiru, US. (1971). Creativity in relation to intelligence and personality factors. Second Survey of Educational Research.P.258.

Nair,S. Rani. (2011).The influence of Home environment and classroom climate in relation to the achievement of secondary level students in Biology.(M.Ed. Thesis)

Neufield, JJ. (1994). The relationship of creative thinking abilities on the academic achievement of adolescents. Dissertation Abstracts International.25,3404.

Kusuma, A. (2004). A study on creativity in tribal and non-tribal children. Research and Reflections on Education. Vol.11 p.24.

Faux, BJ. (1992). An analysis of the interaction of critical thinking, creative thinking and intelligence with problem solving. Dissertation Abstracts International.15,3136.

Alan, Mehamood. (2009). Academic achievement in relation to creativity and achievement motivation .A correlational study. Edutracks 8 (9).

Sumesh, PV. (2002). A study on the influence of self- concept on academic achievement of secondary school students of Kerala. .(M.Ed. Thesis) MG University.

Guilford, JP. (1982). Fundamental statistics in Psychology and Education. Mc Graw Hill Company. New York.

Educational Extracts
Vol. I Issue I January 2013
pp. 68-72

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

SOCIAL INTELLIGENCE AND SOCIAL COMPETENCIES IN FOSTERING EMOTIONAL INTEGRATION

Dr. (Sr.) Alice Mathew*

Abstract

Since Social Intelligence plays a significant role in fostering emotional integration. The present study was undertaken to assess the level of social intelligence of high school students and it would be helpful in getting an insight on the inculcation of social intelligence. Normative Survey method was used for the study. The sample consisted of 200 students randomly selected from four schools of Kottayam District. Social Intelligence Scale was used for collecting the data. The findings of this study showed that majority of our students are socially intelligent.

Key words: *Social Intelligence, Social competencies, emotional integration, Patience, confidence, sensitivity, tactfulness & sense of humour, etc.*

Introduction

Education is the dynamic means by which we are introducing children to the society. Though gregarious nature is inborn in us, the direction, the attunement and the purpose to which this tendency is directed is the basic function of education. Education is a product of society and an instrument in shaping it. The higher objectives of education are the total development of human personality and transmission of the accumulated knowledge for the development of the knowledge and skills required to live as responsible citizens. One of the significant factors in this regard is social intelligence and emotional integration.

Educational environment plays an important role in the development of social intelligence which in turn fosters emotional integration and national integration. For the individual emotional integration can be taken to mean a completely balanced personality, whose desires, ambitions and emotions all direct themselves to useful and positive ends, a personality in which there is tolerance and restraint . In the same way an emotionally integrated group is aware of its country as a single entity. It leaves behind

* *Associate Professor, Mount Carmel College of Teacher Education for Women, Kottayam, Kerala. E-mail: gracerose@rediffmail.com*

all affiliations of community, language or region. It generates a common faith for the country and its populace. (Bhatnagar, 1983).

Need and Importance of the Study

In Indian Society, the development of emotional integration is one of the aims of education. Indian culture is a composite one. Problems are there because of the factors like difference in languages of different states, regionalism, casteism, variety of value systems, religious differences etc. "Emotional integration is the sentiment which consigns oblivion the linguistic, racial, religious and other differences between various communities and welds them into a single unity. Thus it implies an attitude or mental state which rises above all differences of caste and class and which binds in a single bond, the people of different religions, communities and languages. The term emotional integration is based upon both for the individual as well as the human group.

To quote S.Bhatnagar (1983) "Emotional integration provides the foundation for National integration. When the citizens of a country come to experience emotional integration; they also develop a tendency to sacrifice their private and narrow interests in order to bring about national progress. In short, national integration can be viewed as a feeling which encourages people to have the same affection for every person in the country and also to care for the interests of the entire nation.

Social intelligence according to the original definition of Edward Thorndike, is "the ability to understand and manage men and women, boys and girls, to act wisely in human relations". It is equivalent to interpersonal intelligence, one of the types of intelligences identified in Howard Gardner's Theory of multiple intelligences, and closely related to theory of mind.

Social Intelligence (SI) is the ability to get along well with others, and to get them to cooperate with you. Sometimes referred to simplistically as "people skills," SI includes an awareness of situations and the social dynamics that govern them and knowledge of interaction styles and strategies that can help a person achieve his or her objectives in dealing with others. It also involves a certain amount of self-insight and a consciousness of one's own perceptions and reaction patterns.

From the standpoint of interpersonal skills, Karl Albrecht classifies behavior toward others as falling somewhere on a spectrum between "toxic" effect and "nourishing" effect. Toxic behavior makes people feel devalued, angry, frustrated, guilty or otherwise inadequate. Nourishing behavior makes people feel valued, respected, affirmed, encouraged or competent. A continued pattern of toxic behavior indicates a low level of social intelligence - the inability to connect with people and influence them effectively. A continued pattern of nourishing behavior tends to make a person much more effective in dealing with others; nourishing behaviors are the indicators of high social intelligence.

Measuring SI involves identifying key interaction skills and then assessing them behaviorally. All human interaction takes place with some context or other, and effectiveness involves mastering the contexts within which one is called upon to

interact. So, according to this reasoning, SI means understanding contexts, knowing how to navigate within and between various contexts, and knowing how to behave in various contexts so as to achieve one's objectives. In other words, SI is inferred from behavior, so we use various observable behaviors as indicators of SI.

In defining social intelligence we're talking about a general category: the human capacity to understand what was happening in the world and responding to that understanding in a personally and socially effective manner. We have to confine our definition of social intelligence so we're not including within it all positive human attributes, making it a kind of definitional panacea. What we're trying to do in defining social intelligence is get at a quality in human beings which makes them capable of awareness and understanding in the broadest possible terms. Not mere financial or academic or interpersonal success but the ability to understand and interconnect which makes it possible to make their lives worthwhile and in making their society better during their lifetime.

Social intelligence can reduce conflict, create collaboration replace bigotry and polarization and mobilize people towards common goals. Social transformation is the main aim of education. A good insight into the social intelligence of a person can be the source of social transformation as well.

Social Competence

A child's social competence depends upon a number of factors including the child's social skills, social awareness, and self-confidence. The term social skills describes the child's knowledge of and ability to use a variety of social behaviors that are appropriate to a given interpersonal situation and that are pleasing to others in each situation. The capacity to inhibit egocentric, impulsive, or negative social behavior is also a reflection of a child's social skills. Children who have a wide repertoire of social skills and who are socially aware and perceptive are likely to be socially competent.

Parents are the primary source of social and emotional support for children during the first years of life, but in later years peers begin to play a significant role in a child's social and emotional development. . In addition, relationships with peers typically involve more give and take than relationships with adults and thus provide an opportunity for the development of social competencies such as cooperation and negotiation.

Neuroscience is quickly discovering that humans are wired to connect. Our ability to connect with fellow humans influences us in deep and immediate ways. Social intelligence focuses on this intimate connection between two human minds. Social Intelligence expands from the one-person psychology within an individual to a two-person psychology that looks at the connection shared between individuals. In this regard, Goleman defines social intelligence as: 1) social awareness, which comprises of primal empathy, attunement, empathic accuracy, and social cognition, and 2) social facility, which includes synchrony, self-presentation, influence, and concern.

Statement of the Problem

Since Social Intelligence plays a significant role in fostering emotional integration, assessing the level of social intelligence of high school students would be helpful in getting an insight on the inculcation of social intelligence. Hence the present was undertaken. The Study is entitled as " **A study on the level of social intelligence of high school students of Kottayam District".**

Operational definition of Social Intelligence

Social Intelligence is the ability to adjust to the social environment manifested through the following dimensions of patience, co-cooperativeness confidence, sensitivity, tactfulness & sense of humour.

Objectives

To study the difference in the social intelligence among high school students with regard to; Gender and Locale

Hypotheses

There is significant difference in the mean scores of social intelligence of high school students of Kottayam District on the basis of Gender.

There is significant difference in the mean scores of social intelligence of high school students of Kottayam District on the basis of locale.

Methodology

Normative Survey method was used for the study

Sample

The sample consisted of 200 students randomly selected from four schools of Kottayam District.

Tool Used for the Study

Social Intelligence Scale: It was prepared and standardized by Dr. N.K Chanda and Ms Usha Ganesh. It consists of 30 items. Among the various dimensions, the investigator selected 6 dimensions namely Patience, confidence, sensitivity, tactfulness &sense of humour.

Design of the study

The Social Intelligence Scale was administered to 200 hundred students studying in the X standard of four schools in Kottayam district. The answered tools were collected and scoring was done as per the instructions given in the Manuel. The scores were statistically analyzed.

Analysis of the data

The major objective of the study was to find out the level of social intelligence among the secondary school students. The scores were subjected to descriptive & differential analysis. The Table I represent the Statistical Constants of Social Intelligence Scores of boys and girls.

Table 1
Statistical Constants of
Social Intelligence Scores

Sample	N	Mean	SD
Total	200	64.68	4.52
Boys	100	64.14	4.24
Girls	100	60.32	6.73
Urban	100	61.22	4.82
Rural	100	64.26	4.23

Table 2
Distribution of Students in terms of Social Intelligence

Below Average	Average	Above Average
11.89%	64%	24.11%

Out of the total sample of 200 students 11.89% were below average 64% average and 24.11% were above average in social Intelligence.

Figure 1
Classification of Students in terms of Social Intelligence

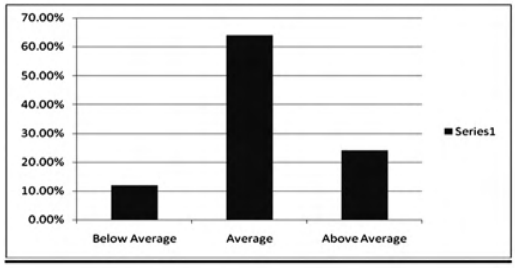


Table 3
Testing the significance of Difference in the mean scores of Social Intelligence with regard to Gender & Locale

Sample	N	't' Value	Comment
Boys	100	4.275	Significant
Girls	100		At 0.01 level
Urban	100	6.128	Significant
Rural	100		At 0.01 level

The table shows that there is significant difference in the mean scores of social intelligence of secondary school students with respect to gender and locale.

Findings of the study

- There is significant difference in the mean scores of social intelligence of secondary school students with respect to gender.

The calculated 't' value 4.275 is greater than the table value of significance at 0.01 level, the hypothesis is accepted. The mean score of boys on social intelligence scale is 64.14 and that of girls is 60.32. Thus we could say boys are better than girls with respect to social intelligence.

- There is significant difference in the mean scores of social intelligence of secondary school students with respect to locale.

The calculated 't' value 6.128 is greater than the table value of significance at 0.01 level, the hypothesis is accepted. The mean score of Urban students on social intelligence scale is 61.22 and that of rural students is 64.26.

- The results of the study revealed that 87.88 % of students have average and above average level of social intelligence.

Educational Implications

The findings of this study shows that majority of our students are socially intelligent. Our innate spontaneous tendency to relate is in a vital dynamism. This instinct has to be pruned interpreted for a deliberate social build up. Our education can achieve its real target by directing this intelligence towards the realization of emotional & national integration.

References

Goleman, D. (1985). *Emotional Intelligence.* NY: Bantam Books.

Goleman, D. (2010). *Social Intelligence.* NY: Bantam Books.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences.* NY: Basic Books.

Karl, A. (2005). *Social Intelligence: The new Science of Success.* N.Y: Pfeiffer.

Sternberg, R. J & Williams, W. (1998). *Intelligence, Instruction and Assessment.* London: Lawrence Erlbaum.

Educational Extracts
Vol. I Issue I January 2013
pp. 73-78

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

LEVEL OF ASPIRATION AND ACADEMIC ACHIEVEMENT OF EMOTIONALLY DISTURBED STUDENTS AT SECONDARY LEVEL

Dr. K.K. John*

Abstract

The present study is concerned with the level of aspiration and academic achievement of emotionally disturbed students of secondary level. Emotionally disturbed students were identified by using Emotional Disturbance Scale level of Aspiration Scale was used to find out the aspiration level of students. The study revealed significant correlation between level of aspiration and academic achievement.

Key words: *Level of aspiration, Emotionally disturbed students, Academic achievement, etc.*

Introduction

The term *'Emotional disturbance,'* has different meanings. For teachers an emotionally disturbed child is one who is shy, withdrawn, or who is too aggressive. Emotionally disturbed behaviour was considered synonymous with misbehaviour or deviancy. By deviancy it is meant that "a student takes actions which are prohibited by the teacher".

Emotionally disturbed child has the following characteristics-(a) an inability to learn (b) an inability to build and maintain satisfactory interpersonal relationship with peers and teachers (c) inappropriate behaviour (d) unhappiness or depression (e) a tendency to develop physical symptoms of fear associated with personal or school problems. (K. C. Panda; Education of Exceptional Children)

The causes of emotional disturbance have not been adequately determined. Although various factors such as heredity, brain disorder, diet, stress and family functioning have been suggested as possible causes, research has not shown any of these factors to be the direct cause of behaviour or emotional problems. Some of the characteristics and behavior seen in children who have emotional disturbance include - Hyperactivity (short attention span, impulsiveness), Aggression / self injuries behaviour (acting out, fighting), Withdrawal (failure to initiate interaction with others,

* *Associate Professor, Titus II Teachers College Thiruvalla, Kerala.*
E-mail:kkjohn57@rediffmail.com

retreat from exchanges of social interaction ,excessive fear or anxiety), immaturity (inappropriate crying, temper tantrums, poor coping skills), Learning difficulties (academically below grade level).

To educate Emotionally Disturbed Students, firstly it is necessary to identify children who may be emotionally disturbed and evaluate their ability to participate in a classroom. Signs of emotional disturbances include an inability to learn or retain new information, a difficulty in establishing interpersonal relationships, displays of inappropriate behaviour and general moodiness or depression. These observable behaviours should be immediately referred to a school Psychologist and the parents of the child. Secondly signs of emotional disturbances should be documented by teachers and school administrators and immediately discussed with parents. Thirdly, an emotionally disturbed child should be educated through enrolment in an academic program that provides both behaviour modification techniques and emotional support. Fourthly Psychiatric services and counselling may be available for emotionally disturbed children at no cost, Fifthly, the paths to communication between teachers, parents and mental health professionals should be open. Sixthly, goals for emotionally disturbed children should be set and will last throughout their academic careers. Vocational training and therapy should also be ensured so that they grow up to be more productive and healthy.

The emotionally disturbed children seem to obtain most benefit from an individualized education program that targets their specific needs. To achieve or acquire something, the most essential requirement is to have an aspiration for its achievement. Aspiration is the key for wish fulfilment, progress and success in life. The important factors that influence level of aspiration are intelligence, interest, values, parental ambitions, personal characteristic, social expectations, peer pressure, culture, competition, group cohesiveness wishes, personality, past experiences, sex, socio economic back ground and the like. The encouragement and life situations availed to a person at different stages of growth accelerates his quest for achievements in life.

Hence, this study attempts to investigate the Level of Aspiration and Academic Achievement of Emotionally Disturbed Students at Secondary level in Kerala.

Statement of the Problem

The problem under investigation can be stated as "LEVEL OF ASPIRATION AND ACADEMIC ACHIEVEMENT OF EMOTIONALLY DISTURBED STUDENTS AT SECONDARY LEVEL".

Objectives of the Study

The objectives of the present study are the following;

1. To find out the emotional level of secondary school students.
2. To identify the emotionally disturbed students at secondary level
3. To find out the level of aspiration and academic achievement of emotionally disturbed boys and girls at secondary level.

4. To find out the level of aspiration of emotionally disturbed secondary school students
5. To find out the academic achievement of emotionally disturbed secondary school students.

Hypotheses of the Study

There will be significant difference in the correlation between level of aspiration and academic achievement of emotionally disturbed boys and girls at secondary level.

1. There will be significant difference in the level of aspiration of emotionally disturbed boys and girls at secondary level.
2. There will be significant difference in the academic achievement of emotionally disturbed boys and girls at secondary level.
3. The level of aspiration of emotionally disturbed student is less.

Sample

The study consisted of a sample of 350 secondary school students from various parts of Alappuzha District. The sample consisted of both boys and girls from Government, Aided and Unaided secondary students, the students residing from urban and rural areas and different classes With the help of the study 65 students are identified as emotionally disturbed among 350 students. Random sampling technique was adopted for the selection of the sample.

Variables

The variables of the study were - (a) Level of Aspiration, (b) Academic Achievement and (c) Emotional Disturbance

Tools

The following tools were used in this study- LEVEL OF ASPIRATION SCALE (John &Alexander 2008), EMOTIONAL DISTURBANCE SCALE (John &Thomas 2009) and PERSONAL INFORMATION SCHEDULE.

Statistical Techniques

The statistical techniques used are: Karl Person's Product-Moment Correlation, The t test and ANOVA.

Procedure adopted for identifying Emotionally Disturbed Students

The investigator identified the Emotionally Disturbed Students with the help of Emotional Disturbance Scale (prepared by John and Thomas (2009). With the help of this scale, the scores of 350 size of the sample were collected. Then the Mean and standard deviation (SD) of these scores was found out. The statistical technique Mean + 1 SD and Mean - 1 SD was used. Those who got scores below Mean + ISD was considered as average and low scorers that is they are found to be the normal students and those students who have got scores above average and low scores that is above Mean + ISD are considered as high scorers and they are the Emotionally Disturbed Students. In this way, with the help of this statistics Emotionally Disturbed Students were identified and their level of Aspiration and Academic Achievement were found out.

Academic Achievement Scores

The investigator collected the marks of Ist terminal Examination which is conducted by Secondary School Head

Masters Associations, Kerala State Board as Academic Achievement Scores.

Correlation Analysis

1. **Relation between level of aspiration and academic achievement of Emotionally Disturbed Students at Secondary Level**

Pearson Product Moment Method of correlation was used to find the relationship between the variables Level of Aspiration and Academic Achievement of Emotionally Disturbed Students at Secondary level. The data and results are given in Table

Table 1
Correlation between Level of Aspiration and Academic Achievement

Variables	N	r	Level of Significance
Level of aspiration	350	*0.5173*	*0.01*
Academic achievement	350		

The correlation coefficient obtained between level of Aspiration and Academic Achievement was negative -0.5173. This is found to be significant at 0.01 level, and was verbally terpreted as negative substantial correlation. This means that there existed significant negative substantial correlation between these variables.

Test of Tenability of Hypothesis

On the basis of the above discussion Hypothesis which is stated that 'there existed significant correlation between level of aspiration and academic achievement' is accepted.

Relation between level of aspiration and academic achievement of Emotionally Disturbed Boys and Girls at Secondary Level

Pearson Product Moment Method of correlation was used to find the relationship between the variables level of aspiration and academic achievement of Emotionally Disturbed Students at Secondary level. The data and results are given below.

Table 2
Correlation between Level of Aspiration and Academic Achievement of Boys & Girls

Sex	N	r	Level of Significance
Boys	34	*0.6427*	*0.01*
Girls	31		

The correlation coefficient obtained between level of Aspiration and Academic Achievement of Emotionally Disturbed boys was negative -0.6427. This is found to be significant at 0.01 level and verbally interpreted as negative substantial correlation. This means that there existed significant negative correlation between these variable.

The correlation co-efficient obtained between level of Aspiration and Academic Achievement of Emotionally disturbed girls was -0.3975. This r was found to be significant at 0.05 level for girls. This means that there existed significant substantial and marked negative correlation between two variables for girls.

Test of Tenability of Hypothesis

On the basis of the above discussion the Hypothesis, which is stated that "there existed significant correlation between level of aspiration and academic achievement of Emotionally Disturbed boys" is accepted

On the basis of the above discussion the Hypothesis, which is stated that "there existed significant correlation between level of aspiration and academic achievement of Emotionally Disturbed girls" is accepted.

Table 3
Data and Results of T test for comparing Boys and Girls with Regard to Level of Aspiration

Group	N	M	SD	t value	Significance
Boys	*34*	*67.62*	*8.65*	*1.71*	*0.05*
Girls	31	71.16	8.00		

It is clear from the above data results given in Table that there is no significant difference between Boys and Girls in their level of Aspiration. Since the calculated 't' is 1.71 which is smaller than the table value is not significant at 0.05 level.

Table 4
Data and Results of T test for comparing Boys and Girls with Regard to Academic Achievement

Group	N	M	SD	t value	Significance
Boys	*34*	*627.56*	*133.13*	*0.414*	*0.05*
Girls	*31*	*612.67*	*154.12*		

It is clear from the above data results given in Table that there is no significant difference between Boys and Girls in their Academic Achievement. Since the calculated 't' is 0.41473 which is less than the table value is not significant at 0.05 level.

Findings

The findings drawn from the study are the following:

1. The r obtained by correlating the variables level of aspiration and academic achievement of secondary students was -0.5173 which is significant at 0.01 level.
2. The r obtained by correlating the variables level of aspiration and academic achievement of boys at secondary level is -0.6427 which is significant at 0.01 level and of girls at secondary level is -0.3975 which is significant at 0.05 level.
3. The t obtained by comparing the boys and girls at secondary level for the variable level of aspiration was 1.71407 which is significant at 0.05 level. The mean scores obtained by the boys was 67.6176 and that of girls was 71.16129 which was found to be less than the table value.
4. The t obtained by comparing the boys and girls at secondary level for the variable Academic Achievement was 0.41473 which is significant at 0.05 level. The mean scores obtained by the boys was 627.558 and that of girls was 612.6774 which was found to be les than the table value.

Conclusion

From the present study the following conclusions are arrived at;

1. There existed significant negative substantial correlation between the variables level of aspiration and academic achievement of emotionally disturbed students of secondary level.
2. There existed significant negative substantial correlation between the variables level of aspiration and academic achievement of emotionally disturbed boys and girls at secondary level.
3. There existed no significant difference between Emotionally Disturbed boys and girls in their level of aspiration.
4. There existed no significant difference between Emotionally Disturbed boys and girls in their academic achievement .

References

Best, J. W., and Khan, V. (2006). *Research in education.* New Delhi: Prentice Hall of India Ltd.

Bush, M. B. (Ed) (1979). *Second survey of Research in education.* New Delhi: S. Chand and Company Ltd.

Buch, M.B. (Ed) (1988-92) *5th Survey of Research in education.* New Delhi: Prentice Hall of India Pvt Ltd.

Eson, M.B. (1964). *Psychological foundations of education*. USA, Holt,Rinehart and Winston, Inc, 398-420

Eysenck, H. J., and Arnold, W. (1972). *Encyclopedia of psychology* London.

Garrett, H.E. (1981). *Statistics in psychology and education.* Bombay: Vakils Febber and Simons Ltd.

Henry C. L. (1962). *Educational psychology in the classroom* (2nd ed) New York, London: John Wiley & Sons.

Hilgard. E. R. (1975). *Introduction to psychology* (4th ed). New Jersey: Prentice Hall

Hurlock, E. B. (1978). *Child Psychology. Tokyo:* Me Graw - Hill, Asian student (6th ed.)

Educational Extracts
Vol. I Issue I January 2013
pp. 79-83

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

EFFECTIVENESS OF STAR MODEL FOR VOCABULARY DEVELOPMENT AMONG UPPER PRIMARY SCHOOL STUDENTS

Sree Vrinda Nair. N*

Abstract

Vocabulary knowledge is important because it encompasses all the words we must know to access our background knowledge, express our ideas and communicate effectively, and learn about new concepts. Students develop vocabulary when teachers provide direct instruction on the use of effective word-building strategies. This study intends to find out the effectiveness of STAR strategy for the development of vocabulary among upper primary school students. In the present study, the experimental research was followed and a single group pre test post test design was adopted. A sample of 72 students studying in std.5 was selected for this study. The study found that STAR model is effective in the achievement in vocabulary.

Key Words: *Vocabulary, STAR model, phonemic awareness, phonics and word study, fluency, vocabulary and comprehension, etc.*

Introduction

Vocabulary is one of the five core components of reading instruction that are essential to successfully teach children how to read. These are components include phonemic awareness, phonics and word study, fluency, vocabulary and comprehension. (National Reading Panel, 2000). Vocabulary knowledge is important because it encompasses all the words we must know to access our background knowledge, express our ideas and communicate effectively, and learn about new concepts. Students 'word knowledge is linked strongly to academic success because students who have large vocabularies can understand new ideas and concepts more quickly than students with limited vocabularies. Vocabulary is the knowledge of words and word meanings. It is also a main component of reading comprehension.

Need and significance of the study

There is a tremendous need for more vocabulary instruction at all grade levels by

* *Assistant Professor, NSS Training College, Pandalam, Pathanamthitta (Dist), Kerala. E-mail: sreevrinda26@gmail.com.*

all teachers. The number of words that students need to learn is exceedingly large; on average students should add 2,000 to 3,000 new words a year to their reading vocabularies (Beck, McKeown&Kucan, 2002).Students with limited knowledge, students who do not read outside the school, students with learning disabilities are some significant obstacles to developing sufficient vocabulary to be successful in school.

To overcome these obstacles, teachers need to engage the best kinds of vocabulary instruction in the classroom. There are several effective explicit and implicit strategies fir developing vocabulary of students. One way students develop vocabulary is indirectly through reading, listening, and speaking. A student's background knowledge and prior experiences play a large role in vocabulary development. Secondly, students develop vocabulary when teachers provide direct instruction on the use of effective word-building strategies. Unfortunately, most of the research studies show that teachers spent less than 1% of classroom instruction on vocabulary development due to many reasons. Marzano (2005) lists research based guidelines for teachers implementing direct vocabulary instruction in his books Building Background Knowledge and Building Academic Vocabulary: Teachers Manuel. Some of them are,

1. Students should discuss the terms they are learning through cooperative learning activities.
2. Students should play with words using challenging and engaging vocabulary games.
3. Different types of words require different types of instruction.
4. Teaching word parts enhances student understanding of the text.
5. Effective vocabulary instruction involves the gradual shaping of word meanings through multiple exposures like, comparing and contrasting, classifying, and creating analogies etc.
6. Students must represent their knowledge of words in non linguistic ways such as drawing a picture, creating a symbol etc.

Here the investigator selects STAR strategy for the development of vocabulary among upper primary school students.

Statement of the problem

Effectiveness of STAR model for vocabulary development among upper primary school students.

Objectives of the study

1. To find out the effectiveness of STAR model for the vocabulary development of upper primary students.
2. To find out the significant difference of the STAR model for the development of vocabulary of upper primary students with respect to gender.
3. To find out the significant difference of the STAR model for the development of vocabulary of upper primary students with respect to type of school

Hypotheses of the study

1. The STAR model is more effective for developing vocabulary of upper primary students
2. There is no significant difference on vocabulary development of upper primary students taught through STAR model with respect to gender
3. There is no significant difference on vocabulary development of upper primary students taught through STAR model with respect to type of school

Methodology

In the present study, the experimental research was followed and a single group pre test post test design was adopted.

Sample

A sample of 72 students studying in std.5 was selected by random sampling techniques from the Malayalam medium schools in Pathanamthitta district.

Tool used

Lesson designs based on STAR model, Vocabulary test in Malayalam

STAR model: Blachowicz and Fisher suggest the STAR model because it provides explicit vocabulary instruction. It will help the students to increase their vocabularies. (Blachowicz, Fisher 2004). The STAR model consists of varied steps which are listed below.

SELECT

- Choose appropriate content words.
- Focus on words essential to understanding of the text.
- Draw a story map and select more words to summarize the text.
- Look for other important words

TEACH

- Assess the prior knowledge
- Use contextual definition of the words
- Discuss the meaning with the students
- Scaffold the students
- Ask them to use the words in their own way.

ACTIVATE

- Use writing activities to make sure about the use of targeted words.
- Give students the opportunity to connect new words and the words they already know.
- Demonstrate the word meanings
- Additional activities to revisit important words.
- Use unit reviews, word books, vocabulary journals etc.

REVISIT

- Check the learning outcome
- Practice it in new contexts

Procedure

A pre test (vocabulary test) was administered to the students by using some select topics from their Malayalam text book to assess their vocabulary. Reliability of the test was established through test retest method gave the reliability index to be 0.64. It was worked out on a representative sample of 50 students. Two consecutive testing had an interval of three weeks between them. Choose the similar word, best word that fit in the sentence, choose the appropriate

meaning, sentence completion, antonyms, are some of the areas selected for the test. The pre test scores were registered. The investigator employed STAR model for the development of vocabulary for a period of five weeks in the classroom. A post test was administered to the students to evaluate their knowledge and the scores were computed and the't' value was calculated to find out if there was significant difference between the pre test and post tests.

Table 1
Sample selected

Name of the schools	Boys	Girls	Total
Govt.U.P.S, Kozhencherry	21	17	38
NSS. U.P.S, Pandalam	18	16	34

Table 2
Pre and post test Achievement scores in Vocabulary test

Pre Test		Post test		't' value	Level of significance
Mean	S.D	Mean	S.D	4.26	0.01
44.38	10.31	53.87	13.01		

Table 3
Post Achievement scores in vocabulary test-Boys and Girls

Gender	N		Post test	't'	significance
Boys	39	58.25 (mean)	14.14 (S.D)	3.05	0.05
Girls	33	50.44 (mean)	12.12 (S.D)		

Table 4
Post Achievement scores in vocabulary test-Govt and Aided

Type of school	N	Post test		't'	significance
Govt.	38	52.07 (mean)	12.24 (S.D)	0.60	Not Significant
Aided	34	50.77 (mean)	12.36 (S.D)		

Table shows that there was a significant gain in scores due to the model adopted. This is in favor of the effectiveness of the STAR model upon the achievement in vocabulary. Table shows that there was significant difference among the performance of boys compared to girls in vocabulary development. Boys fared better than girls. Table 4 shows that there was no significant difference between the performance of students belonging to Govt and Aided schools with regard to vocabulary development.

Results and Discussions

One of the most difficult tasks fir teaching learners is building vocabulary. Word knowledge is crucial to reading comprehension. Developing a good vocabulary will ensure that learners will reach their full potential in their career and in education. Vocabulary programmes should be designed to support children's word learning through a combination of direct teaching and incidental learning. Michael Graves (2006) offers a framework for successful vocabulary programmes that support effective development in vocabulary. His program me includes a four part approach such as provide rich and varied

language experiences, teach individual words, teach word-learning strategies and foster word consciousness.(pp.4-8) Graves and Watts Taffe (2008) suggest that teachers create a word rich environment and promote word play, foster word consciousness and teach students about words.(p.186) This study also proves that vocabulary instruction should provide students with information that contains the context as well as the meaning of the word. It also creates a dialogue around the words. An important aspect of a strong vocabulary programme is to engage students in learning new words. As teachers, we need to develop word consciousness within our students and maintain their interest in words. Then only learning will become a fruitful activity and learners will become independent learners.

References

Blachowicz, Camille L.z., and Peter Fisher."Vocabulary Lessons". Educational Leadership (March2004):66-69.

Beck, I.L., McKeon, M.G., & kucan, L. (2002).Bringing words to life: Robust vocabulary instruction. New York: Guilford Press.

Graves, M.F. (2006).The vocabulary book: Learning and instruction. New York: Teachers College Press.

Graves, M.F., &Watts Taffe, S. (2008).For the love of words: Fostering word consciousness in young readers. The Reading Teacher, 62(3), 185-193.

Marzano, Robert J., and Debra j. Pickering. Building Academic Vocabulary: A Teacher's Manuel. Alexandria, VA: ASCD, 2005.

Educational Extracts
Vol. I Issue I January 2013
pp. 84-89

St. Thomas College of Teacher Education, Pala, Kerala
Website: www.stce-pala.info
email: educationalextracts@gmail.com

ROLE OF MULTIPLE INTELLIGENCES AND CREATIVITY IN STUDENTS' LEARNING STYLE

Dr. Sunny Skariah*

Abstract

Developments and studies in the field of intelligence and creativity had been widely popularized by educators, practitioners and psychologists. Many studies had been conducted in examining the relationship between intelligence and creativity where contradicting findings were reported.

Key Words: *Multiple intelligence, Creativity, Learning style, Intelligence, etc.*

The types or degree of intelligences varies among individuals and is not a fixed attribute which is similar with the nature of creativity. Both intelligence and creativity could be developed in varying degrees throughout the development of an individual. Therefore, it is the objective of this study to examine the relationship between creativity and intelligence.

This study adopted a descriptive survey method where a set of questionnaire was used for the purpose of data collection in determining the relationship between the two variables. A total of 140 randomly selected students which consisted of both male and female students were involved in the study. Research findings showed that overall, there was a significant and positive relationship between multiple intelligences and creativity (r=0.648). Research findings also showed that students from both gender possessed high intelligence in common domains, namely interpersonal (M=3.795, SD=0.61), followed by intrapersonal (M=3.656, SD=0.628) and musical (M=3.648, SD=0.863) as well as similar characteristics of creativity in two constructs (imagination and fantasy, and playfulness). To conclude, it is important to identify students' intelligence profile as well as their creativity level according to domains. This is to aid students learning, providing them with the optimum learning environment through their preferred learning medium and help them to achieve their fullest potential in their respective talented areas.

Need and Significance

Howard Gardner's theory of multiple intelligence supplies credence to something teachers have known for generations. Some students are good at some activities but not

* *Principal, Mount Tabor Training College, Pathanapuram, Kerala.*
E-mail: 61sunny@gmail.com

others. The great thing about the theory is that it's respected and acceptable to use while designing your lesson plans and units. By being able to cite this theory, you can back up your own knowledge of why it's important to include art, music, charts, and group work on a regular basis.

Gardner's theory is also gaining prestige in the differentiated learning field as well. When a teacher uses multiple intelligences in lesson plans, it shows creativity, drive, and a concern for students. By using activities based on this theory in your classroom, you prove to your administrator that you are working to reach all of your students and help them achieve.

It is important to remember that you may not be able to use all intelligences in every lesson. That is a good goal to strive for, but there are times that you may not be able to do this. Be gentle with yourself, especially as you are beginning the process. Individual cognitive abilities are believed to take on two types of approaches. They are either concerned with the 'correctness' or the 'rightness' of a response. The correctness and rightness of a response shows the degree to which logical reasoning or intelligence is present, whereas, the goodness of an answer relates to the extent to which an answer or solution to a problem is appropriate or suitable to the cause of problem or context, which is the central factor in creativity, along with originality and novelty (Shouksmith, 1970). Creativity is believed to be similar with intelligence, where it is something that everyone possesses in some amount and it's not a fixed attribute instead, a person's level of creativity could be developed in varying degrees (Sternberg & Lubart, 1995). Wallach & Kogan (1965) had stressed that it is critical that to achieve the full and thorough understanding of cognitive functioning, a joint study of both intelligence and creativity is crucial. Therefore, it is the objective of this study to examine the relationship between creativity and multiple intelligence.

According to Han & Marvin (2002), a domain-specific perspective on creativity presents a more useful and flexible way to identify students' ability and to help them in developing their dominant strengths where this belief is in congruent with the findings of their research supporting the school of domain-specific creativity. Creativity needs to be nurtured and fostered in order to develop and flourish (Freeman, 2006) similar with the nature of multiple intelligences. In identifying creativity that is domain-specific, educators will then be provided a platform to nurture and aid the development of creativity through teaching strategies that go hand-in-hand with the dominant learning styles of students. With a firm grasp of the dominant learning styles of students, teachers will be able to design and implement appropriate selections of instructional designs to enhance and optimize the learning experience of a wider range of students.

Hypothesis

1. There is no significant differences among male and female students in their multiple intelligences

2. There is no significant relationship between creativity and multiple intelligence
3. Both creativity and intelligence will influence a students learning

Objectives

1. To study the distribution of multiple intelligences in the total sample
2. To compare the distribution of multiple intelligences based on gender
3. To study the relationship between creativity and Multiple intelligences
4. To suggest some modifications in learning styles of students based on the relationship between creativity and multiple intelligences.

METHODOLOGY

Sample: The participants for this study were randomly selected Secondary school students from different schools in the state of Kerala. A total of 140 students which consisted of both male and female students were involved in the study.

Procedure

This study adopted a descriptive survey method where a set of questionnaire was used for the purpose of data collection. Correlation analysis was used to determine the relationship as well as the significant magnitude among the eight types of intelligences and creativity.

RESULTS

The results obtained are presented in table below

Table 1
Distribution of Multiple intelligence in total Sample

Intelligences	Mean	Standard deviation
Visual spatial	2.554	.702
Linguistic	2.868	.666
Naturalistic	3.166	.796
Logical-math	3.384	.663
Intrapersonal	3.662	.576
Interpersonal	3.756	.577
Musical	3.765	.831
Kinesthetic	2.97	.704

Distribution of Multiple intelligence in total sample

The above table shows that Multiple intelligence components are normally distributed, with interpersonal (M-3.756, ?-0.577) and intra personal (M-3.662, ?- 0.576) showing most normality

Table 2
Comparison of multiple intelligence based on Gender

Intelligences	Male N-67 M	□	Female N-73 M	□	t	Sig
Visual spatial	2.517	.721	2.397	.677	2.742	.000*
Linguistic	2.664	.705	2.898	.624	-5.639	.160
Naturalistic	3.074	.794	3.143	.777	-1.405	.311
Logical-math	3.177	.724	3.223	.696	-1.013	.017*
Intrapersonal	3.656	.628	3.749	.613	-2.396	.944
Interpersonal	3.795	.610	3.798	.590	-.070	.005*
Musical	3.648	.863	3.794	.800	-2.800	.000
Kinesthetic	3.090	.744	2.830	.690	5.795	.006*

Comparison of multiple intelligence based on Gender

Table shows the analysis of students' multiple intelligences by gender. The table shows that the male students had the highest intelligence in interpersonal (M=3.795, SD=0.61), followed by intrapersonal (M=3.656, SD=0.628) and musical (M=3.648, SD=0.863). For female students, they had the highest intelligence in interpersonal (M=3.798, SD=0.59), followed by musical (M=3.794, SD=0. 8) and intrapersonal (M=3.749, SD=0.613). An independent-samples t-test was conducted to compare students' multiple intelligences according to their gender. As shown in Table, between male students and female students, there are significant differences in students' visual spatial intelligence (t=2.742, p=0.006), linguistic intelligence (t=-5.639, p=0.000), intrapersonal intelligence (t=-2.396, p=0.017), musical intelligence (t=-2.8, p=0,005) and kinesthetic intelligence (t=5.795, p=0.000).

Table 3

Correlation between Multiple Intelligences and Creativity

Creativity Characteristics Intelligence	**Physical Energy**	**Smart**	**Playfulness**	**Imagination and fantasy**	**Extroversion**	**Independent**	**Passionate**	**Openness**	**Creativity**
Visual spatial	.095**	.047	.175**	.147**	.133**	.124**	.004	.105**	.151**
Linguistic	.301**	.393**	.309**	.393**	.343**	.328**	.198**	.322**	.473**
Naturalistic	.229**	.368**	.303**	.377**	.397**	.351**	.244**	.278**	.466**
Logical-math	.207**	.317**	.282**	.309**	.314**	.257**	.352**	.301**	.436**
Intrapersonal	.164**	.289**	.244**	.225**	.195**	.117**	.210**	.157**	.499**
Interpersonal	.166**	.145**	.165**	.210**	.348**	.293**	.233**	.268**	.514**
Musical	.217**	.239**	.238**	.262**	.349**	.368**	.120**	.310**	.380**
Kinesthetic	.307**	.295**	.287**	.354**	.363**	.366**	.232**	.420**	.481**
Multiple intelligences	.361**	.460**	.452**	.436**	.514**	.459**	.352**	.477**	.698**

**. Correlation is significant at the 0.01 level (2-tailed)

Correlation between Multiple Intelligences and Creativity

Table shows the correlation between multiple intelligences and creativity. The table shows that overall, there is a significant and positive relationship between multiple intelligences and creativity (r=0.698). The table also shows that there is a significant relationship between kinesthetic intelligence and openness (r=0.42). Besides, the findings indicate that multiple intelligence has strong correlation with openness (r=0.477),

followed by smart (r=0.46), playfulness (r=0.452) and imagination and fantasy (r=0.436). The findings also show that creativity is strongly correlated with interpersonal intelligence (r=0.514), followed by intrapersonal intelligence (r=.499) and intelligences based on logical math (r=0.436), linguistic (r=0.473), kinesthetic (r=0.481), and naturalistic (r=0.466).

DISCUSSION AND CONCLUSION

The study sought to determine whether students exhibit distinct profiles of multiple intelligences as well as their creativity level in each domain based on the eight indentified types of intelligences in order to enhance the learning of students in the classroom context. MI theory insists that every person has at least one dominant intelligence domain and it is necessary to find the strong intelligence domains and consistently develop them. Besides, the dominant domains serve to complement weaker domains, it is also important to develop the weaker intelligences in order to facilitate overall achievement (Jung & Kim, 2005). The notion of multiple intelligences and creativity level helps focus on students who might be outstanding in different talent areas such as art, music, mathematics, science, and other aesthetic or academic areas. Research findings showed that students from both gender possessed high intelligence in common domains, namely interpersonal (M=3.795, SD=0.61), followed by intrapersonal (M=3.656, SD=0.628) and musical (M=3.648, SD=0.863). This research finding is very much similar with the findings obtained by Chan (2001) where students were reported to have higher ratings on items related to interpersonal and intrapersonal intelligences, and lower ratings in items Creativity characteristics and lower ratings in items related to bodily-kinesthetic and visual spatial intelligences.

REERENCES

Batey, M. & Furnham, A. (2006). Creativity, intelligence, and personality: a critical review of the scattered literature. *Genetic, Social, and General Psychology Monographs, 132(4),* 355- 429.

Batey, M. & Furnham, A. (2009).The relationship between creativity, Schizotypy and intelligence. *Individual Differences Research, 7(4),* 272-284.

Bordelon, D.E. & Banbury, M.M. (2005) Pursuing the parameters: validating the multiple intelligences inventory for teachers. *Assessment for Effective Intervention, 30(3)*, 33-51.

Freeman, J. (2006). First insight: fostering creativity in university performance. *Arts and Humanities in Higher education, 5(1)*, 91-103.

Lynn waterhouse. *Educational Psychologist, 4(4)*, 227-232.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books, Inc.

Gardner, H. (1993). Seven creators of the modern era. *Creativity: The Reality Club 4. NewYork: Simon & Schuster.*

Gardner, H. (2006). *Multiple Intelligences: New Horizons in Theory and Practice*. New York: Basic Books, Inc.