CHAPTER II
REVIEW OF RELATED STUDIES

2.01. INTRODUCTION

The term ‘review’ means to organize the knowledge of the specific area of research, which has accumulated in the part as a result of constant human endeavor. Review of related literature and studies is an essential part of Research projects which gives the research worker an understanding of the previous work that has been done in the area he intends to study. This review represents the third step of the scientific method outlined by Dewey and other educational philosophers and a serious student of research will find an exhaustive survey of what has already been done on his problem an indispensable step in his solution. It is a forerunner for the research worker in the sense that it shows the way through which the new comer should proceed. Knowledge available data often serves to narrow the problem itself as well as the techniques that might be used (Ferber and Verdoom, 2000).

According to John Best “Review of related Literature is a valuable guide in defining the problem, recognizing its significance promising data - gathering devices appropriate study design, and sources of data”. The review of the research literature to the problem of study becomes essential for the researcher in order to have a complete and through information of the country. The investigator visited number of libraries, made use of internet facility and collected references from Indian and international research abstracts.

2.02. PURPOSE OF REVIEW OF RELATED LITERATURE:

The purposes of review of related literature are:-

1. To show whether the evidence already available solves the problem adequately without further investigation and thus to avoid the risk of duplication.
2. Provide ideas theories, explanations or hypothesis valuable in formulating the problem.
3. To suggest methods of research appropriate to the problem.
4. To locate comparative data useful in the interpretation of results, and
5. To contribute to the general scholarship of the investigation.

2.03. RELATED STUDIES REVIEWED

In the present study, the investigator has classified the related studies into two groups,

They are,

A. Related Indian Studies
B. Related Foreign Studies

Indian Studies

1. Studies on creativity
2. Studies on physical fitness
3. Studies on mental health
4. Studies related to creativity and physical fitness
5. Studies related to creativity and mental health

Foreign Studies

1. Studies on creativity
2. Studies on physical fitness
3. Studies on mental health
4. Studies related to creativity and physical fitness
5. Studies related to creativity and mental health

2.04. STUDIES CONDUCTED IN INDIA

1. STUDIES ON CREATIVITY

1. Arjinder Singh (2013) studied “Predicting Academic Achievement On The Basis of Achievement Motivation, Emotional Intelligence, and creativity of Student-Teacher”

The present study was an attempt to examine the direct and indirect paths of Academic Motivation, Emotional Intelligence and Creativity for Academic
Achievement. It was conducted on student-teacher studying in B.Ed. class in Guru Nanak Dev University, Amritsar. Students were raised by cluster sampling technique. Result shows that achievement motivation has strongest direct effect on emotional intelligence; gender has strongest direct effect on Creativity and Location of Residence has strongest direct effect in achievement motivation.

2. Harpal Kaur Aujla (2013) conducted a study on “A study of creative talent among over achievers, par achievers and under achievers in foreign language”

Objectives of the study: To determine the relationship of creativity with achievement in foreign language. To find out whether over, par and under achievers in foreign language differ significantly in their creative talent. The sample was restricted to only 250 students of 10\textsuperscript{th} class of government and privately managed recognized high/senior secondary schools of Punjab. Scholastic achievement was limited to the marked obtained in foreign language by the students of 9\textsuperscript{th} class. There is a significant relationship between creativity and achievement in foreign language. Significant difference exists between the creativity scores of over and par achievers in foreign language. There is no significant difference between the creativity scores of par and under achievers in foreign language. There exists significant difference between the creativity scores of over and under achieve in foreign language. Over achievers in foreign language have more creative talent than the under achievers in foreign language.

3. Nazima Tasaduq and Hummara Azim (2012) conducted a study entitled “Creativity Levels between Private and Government School Children in Srinagar City (7\textsuperscript{th} - 10\textsuperscript{th} grade)”

Creativity is a process by which something new, either an idea or object in the form or arrangement is produced. Creativity is seeing something in a new relationship. It is one’s abilities or skills expressed in a new combination. Creativity can be seen in thinking, in expressed activities, in manipulating objects or materials. Creativity is an investigation of new ideas. It is the determination of some unique characteristics. It is an urge in the person to reveal in an object something new. It is also learning to estimate and to deal with the new situations on their unique characteristics. An attempt was made to study the factors affecting the creativity levels between the private and government school children in Srinagar city ((7\textsuperscript{th} - 10\textsuperscript{th}...
grades). Objectives of the study were: 1. To assess the creativity levels between government and private school children, 2. To study the influence of creativity devised by Baqer Mehdi were administered for data collection. Random sampling technique was used. The results revealed that the Private and Government School children differ significantly in their creative abilities. The variation in the school environment was found to be the major factor that affected the creative abilities among Government school students which is due to lack of opportunities, facilities and encouragement in Government schools. Further, gender as a variable could not make any difference among students.

4. **Rajbir Kaur, Jaswant Kaur (2012)** conducted “A Study of Academic Achievement of College Students in Relation To Their Emotional Intelligence and Creativity”

   To investigate the relationship between the level of creativity and achievement of college students. Sample for the present study was selected from college students studying in B.Ed Colleges of Education of Pathankot and Gurdaspur District. Sample comprised of both male and female students (total 400 subjects). Subjects were selected with the help of random sampling technique. Emotional Intelligence Scale by Anukool, Sanjyot and Dhar, (2001), Verbal Test of Creative Thinking by Baqer Mehdi, 1985 was used to collect the data. The data were analyzed by Co-efficient of correlation and t – test. The result of the present study clearly shows that emotional intelligence and creativity are important variables, for the enhancement of academic achievement of the students. Therefore proper care must be taken by the teacher as well as parents to develop the emotional intelligence and creative talent of the students.

5. **Arjinder singh and Dr.Tirath singh (2012)** conducted a study on “Achievement in mathematics in relation to mathematical creativity and gender”.

   Mathematical creativity is characterized in the context of problem formation, invention, independence, and originality; others have applied the concepts of fluency, flexibility, and originality to the concept of creativity in mathematics. The present study was conducted on 9th grade students of schools affiliated to C.B.S.E. located in Jalandhar city. Total 122 students were selected out of which 54 were male. Marks of 8th class examination in mathematics were taken as previous achievement in
Thus, the students who are having good achievement in mathematics have more probability of achieving high marks in mathematics in future also. Originality dimension of mathematical creativity has also been a significant and positive predictor.

6. Nazima Tasaduq and Hummara Azim (2012) conducted a study on “Creativity Levels between Private and government School children in Srinagar City (7\textsuperscript{th} -10\textsuperscript{th} grade) “.

An attempt was made to study the factors affecting the creativity levels between the private and government school children in Srinagar city. Objectives of the study were: To assess the creativity levels between government and private school children, to study the influence of school environment on the students. To determine the relationship between gender on creativity levels. The non-verbal tests creativity devised by Baquer Mehdi was administered for data collection. Random sampling technique was used. The results revealed that the private and government school children differ significantly in their creative abilities. The variation in the school environment was found to be the major factor that affected the creative abilities among Government school students which is due to lack of opportunities, facilities and encouragement in Government schools. Further, gender as a variable could not make any difference among students.

7. Muhammad Nadeem Anwar and Gulam Muhammad (2012) conducted a study on “Relationship of Creative Thinking with the Academic Achievement of Secondary School Students”.

The major purpose of the present study was to explore the relationship between creative thinking and academic achievements of secondary school students. The study was conducted using survey design method a total number of 256 students participated in the study. Participants were selected using random table. Torrance Tests of Creative Thinking was used to measure creative potential of participants on four elements. Pearson correlation and one-way ANOVA were used to verify hypothesis. Results revealed a statistically significant relationship between i) creative thinking and students’ academic achievements on difference aspects of test of creative thinking, ii) creative thinking and academic achievements. However, the relationship could be altered when different level of academic achievement is examined and when
creative thinking measure employed. The study has considerable implications for education as a whole.

8. Thenmozhi C and Dr. Ramakrishnan K.S. (2012) conducted a study on “Gender differences in creativity among secondary grade teacher trainees”

   It plays a vital role in building a society the term creativity is widely used with reference to creative people, the creative process, even a creative environment. Creativity is the ability to produce work that is both novel and appropriate. There is an assumption that there is a relationship between natural/social environment and creative thinking. Age, School, Gender, Fluency, Flexibility and Originality are found to be affecting creativity in children. In this study, the author had selected a sample of 225 student teachers studying in various colleges in and around Chennai and found out that significant differences in their creativity according to their age, type of school gender, fluency, flexibility and originality levels. The data was analyzed and the results obtained with the help of ANOVA and other statistical methods are obtained. The study showed that there are significant differences in creativity with respect to category variables.


   The purpose of this study was to investigate differences for boys and girls in terms of the relation between different aspects of creativity. A sample of 50 boys and 50 girls’ studying in two secondary schools of Aligarh city was randomly selected. The investigator had personally met the participants and administered the tool. Torrance Test of Creative thinking (Verbal Form A) designed by E.P. Torrance (1968) was used. Mean S.D.S and T-test were calculated to analyze the data. The findings reveal that boys do not differ significantly in all the variables of verbal creativity, expect the measures of originality from the girls.

10. Sen, Rekha Sharma; Sharma, Neerja (2011) conducted a study on “Through Multiple Lenses: Implicit Theories of Creativity among Indian Children and Adults”

   This constructivist qualitative enquiry reveals a multiplicity of implicit theories of creativity extant in Indian culture with generic and domain specific usage of
indigenous terms. Creativity was dominantly construed as a faculty of the nature of "pratibha", in keeping with Indian philosophical thought, and with reference to the self, with participants invoking the holistic self, cognitive self, experiential/emotional self and physical self to describe creativity. The sense of creativity in these seemingly disparate, self-based construal’s, the uncovering of which is the unique contribution of this study, derived from the person's experience of a sense of "agency", rather than merely the production of novelty "per se". This emphasis on process; novelty being central for some but epiphenomenal for others; the varied meanings of "newness"; experiencing creativity as self-expression, self-extension, self-fulfillment and self-actualization; and equating creativity with the act of learning reflect distinctive elements of implicit theories that have emerged in this study.

11. Yogesh Sharma and Gunjan Bhalla (2011) studied “Effect of Lateral Thinking Techniques on Creativity”

In the present research attempt was made to study the effect of Lateral Thinking Techniques on Creativity of Class VII Students. The Study was experimental in nature, designed on the lines of Non-equivalent Control Group Design. The sample comprised 104 Class VII students, out of which 54 students were in the Experimental Group and 50 students were in the Control Group. The Experimental Group students were given Treatment with exercises based on Lateral Thinking Techniques, while Control Group students continued with Traditional Method and Routine Activities. Passi Tests of Creativity developed by B.K. Passi were used as a measure of Creativity. The data were analyzed using Analysis of Covariance. Lateral Thinking Techniques were found to be superior to Traditional Method in Fostering Creativity when Pre-Creativity was taken as covariate. Educational implications on the findings are discussed.

12. Kavita Verma (2011) studied “Academic Achievement of High and Low Creative Students”

The aim of the present study is to find out the comparison between academic achievement of high creative and low creative students. The sample consists of 443 (214 high and 229 low creative) non-verbal creative tribal and non-tribal pupils studying 11th class, were taken from various govt. schools of Bastar District in Chhattisgarh State. A verbal and non-verbal test of creativity of Baquer Mehdi was
administered. Test scores of the 10th board examinations (C. G. Board) were used as the academic achievement of the students. The result revealed that high verbal creative students show better achievement in various subject than low verbal creative students. Achievement in Mathematics subject of high-verbal creative students is better than low non-verbal creative students.

13. Richa Sharma (2011) studied “Effect of School and Home Environments on Creativity of Children”

The objective of the study was to find out the effect of school and home environments on creativity of children. A sample of 200 ninth class adolescents’ students from 100 government and 100 private schools was drawn from Chandigarh city of India. The study revealed that government school students of Chandigarh city have higher creativity except in elaboration as compared to private school students. The mean scores also show that the girls as compared to boys have higher level of creativity. The significant t-values show that the creative stimulation, cognitive environment dimensions, permissiveness dimensions of school environment affects the creativity of school children to a certain extent. There also exists a significant difference between children of rich and poor home environments on all the dimensions of creativity.


The sample of this study was confined to the students of XI class from government schools of Chandigarh. Correlation technique was employed to determine the relationship of intelligence, family environment with creativity. The correlation between total non-verbal creativity with intelligence was found to be significant. The findings show that there is significant relationship between non-verbal creativity and intelligence. The result revealed that the correlation between non verbal creativity with cohesion, expressiveness, conflict, independence intellectual cultural orientation, active recreational orientation, moral religious emphasis, organization, control is insignificant while correlation between non verbal creativity with achievement orientation was 140 which is negative but significant. F-Value between high and low intelligence group on the variable non-verbal creativity was found to be significant at 0.01 level of significance.
15. Chetna and P.P. Singh (2010) studied “Creativity among Arts and Science Students”

Education must provide the means and opportunities to enhance the child’s creative expression and capacity for aesthetic appreciation. The present study attempted to know the effect of Arts and Science Streams on the creativity of students. A sample of 160 students was taken from Government and Private Senior Secondary Schools of Faridabad. Data collected was analyzed by applying t-test. Findings revealed that students were better than arts students in total creativity. It was also concluded that variable of sex has no significant influence on the creativity of the students.


Environmental factors have a great impact on creative potential. Similarly, level of educational achievement too appears to be related to creativity level of adolescents, with the objective of findings the influence of academic achievement on creativity, a study was conducted an adolescents in a sample of 240 subjects. Of ages 15 to 17 years from senior secondary schools of Jodhpur city. Passi’s tests of creativity were used to measure the creativity level. Educational achievement was measured on the basis of percentages of aggregate marked obtained by the subjects in their previous examination. The results indicate that (i) the high achiever group of adolescents were more alike and shared similar traits overriding the impact of gender, when gender differences between high achiever group on creativity was observed. There was gender differences among low achiever group on creativity (iii) gender are less impacting than the level of achievement.

II. STUDIES ON PHYSICAL FITNESS

1. M.Ramajayam And V.Gopinath (2013) studied “Health related physical fitness among Adolescence School Boys of Puducherry”

The aim of this study was to analysis the health related physical fitness among adolescents school boys of Puducherry. The shampooing procedure used in this study large distribution of random population. To achieve this purpose the health related physical fitness of different age group 13,14,15 AND 16 YRS SCHOOL GOING
BOYS OF Puducherry in a total (N=3000), various districts (Puducherry, Karikkal, Mathe, Yanam age group (n-750) subjects were selected by convenience shampooing method. At the school level health related physical fitness is one of the major problems among the pupil. The selected criterion variables are Muscular strength (push-ups), Muscular endurance (sit-ups), Cardio Respiratory endurance (Tuttle Puls Ratio test), Percent Body Fat (skill fold technique) and Flexibility (sit and reach test), are measurable components of health related physical fitness. The data were analyzed by one way analysis of variance (ANOVA), to find out whether there was any significant difference on health related physical fitness among the difference age groups. The level of significance was fixed at 0.05, if they obtained ‘F’ ration is significant, scheffe’s post hoc test was applied to find out the means difference. The result clearly indicates that a significant difference lies among the four age group of school boys on all health related physical fitness variables. Health related physical fitness variables muscular strength, muscular endurance, cardio respiratory endurance and flexibility are significantly increased.


Objectives of the study were to assess and compare the BMI (Body Mass Index) percentile before and after the intervention. Quasi experimental design was used. 4 schools were included. By non probability sampling method 120 samples for control group and 120 samples for experimental group were selected from 6th – 8th standard. For experimental group, a module on weight management was issued and the group was educated. Aerobic based exercises were taught. They performed exercises in the school for 5 months. Post test was conducted for both groups. It was found that the intervention was effective in weight management as evidenced by reduction in BMI percentile, PA type, during of moderate PA hours per day among the samples of the intervention group.
3. V. Deepika, Asst. Professor (Contract) OUCW (2011) studied “Effect of eight week participation in physical education and conditioning programmes on flexibility”

This study is to assess the flexibility of human being after the conditioning programme. Twenty eight women students in sports background were taken from I, II & III years of the UCW Koti, Hyderabad. The subjects were administered to Sit and reach test, Standing robbing test, Shoulder flexibility test, and Spine flexibility test. The tests were administered to the students after they were admitted to the bachelors’ degree and before they had not started participating in the regular programme of physical education and conditioning after eight weeks of regular participation, the same tests were again repealed on all the subjects. For determining the significant differences between initial and final mean’t’ test was employed. The result shows that regular participation in a programme of physical education and conditioning of eight weeks duration effectively improves flexibility of the hip, trunk, shoulder and spine as measured by sit and reach test standing bobbing test, shoulders flexibility test and spine flexibility test, respectively.

4. Minaxi M. Patel, Lec.in physical education, Jasani college, Rajkot (2011) studied “Analysis of propulsive task related physical fitness in obese and non obese Adolescent girls”

The purpose of the study was to compare the propulsive task related physical fitness in obese and non obese adolescent girls. The students were divided into ‘obese’ and ‘non obese’ group based on their skin fold measurements. The selected propulsive task related physical fitness variable were assessed by standing broad jump, sit-ups, 50-yard dash, shuttle run and 600 yards run and walk test. Other subjects had inferior performances on all tests requiring propulsion or lifting of the body mass compared with their non obese counterparts. Results of this study showed the obese subjects had poorer performances on weight-bearing tasks scoring lower scores on all fitness components. Results suggested that weight-bearing activities should be limited at the start of fitness program with obese participants and alternative activities that rely more on non weight bearing activities.
5. **J. Prabhakar Rao (2011)** conducted “A study on the physical fitness among basket ball and hand ball players in Hyderabad”

The aim of the present study was to study the difference in Physical Fitness among Basket Ball and Hand Ball Players in Hyderabad. 20 Hand Ball Players and 20 Basket Ball Players between the age group of 18 Years to 21 Years of Osmania University were taken for the Study. The AAPHER Youth Fitness Test consisting of 6 Items were used for the Study. It was found that Hand Ball Players have good Physical Fitness compare to Basket Ball Players. This study shows that the Hand Ball Players are good because they do good Physical Training compare to Basket Ball Players. The Hand Ball Players are having very good speed, and endurance.


The purpose of investigation was to find out differences and also relation of Physical Efficiency, Mental Health and intelligence between Rural and Urban school children of Krishna District of Andhra Pradesh. For this study the investigator follows the cluster sampling method. Two hundred students are studying particularly in different schools of urban and rural religions. The statistical techniques adopted to find out the differences were one way Analysis of Variance (ANOVA). It is concluded that the relationship was found positive between physical efficiency, mental health and intelligence among the four sub groups, which established the existence of relationship within three variables. The correlation between mental health and intelligence steadily exhibits significance at 0.01 level of confidence in each sub groups.

7. **Sateeshkumar Dongre, Sangeeta S. Bamman and N.G. Kannur (2011)** studied “Personality Traits and Physical Fitness among Kabaddi Players”

Aim of the study was to find out the personality traits and physical fitness among inter district and inter university kabaddi players. For this investigation, the investigator has taken 100 male kabaddi players of universities and colleges in Gulbarga division, between the age group 18 to 35 years, selected on random basis, as per level of their participated, i.e. inter district level and inter university level. AAHPER- youth fitness test revised (1970) and C.D. Spielberg sports- Man
personality test questionnaire were employed as tools for collection of data. For
Comparison statistical analysis was done by calculating mean, standard deviation
and ‘t’ value Through SPSS package. It was concluded that the two groups
significantly differ on the five variables / components of physical fitness namely pull
up, sit up, shuttle run flexibility, endurance and two groups of kabaddi players showed
different dimensions of personality traits.

III. STUDIES ON MENTAL HEALTH

1. Guru@Vasuki and Kanakaraj .T (2012) conducted a study on “Mental Health
   and Emotional Intelligence of Prospective Teachers”

   Purpose of this study was to investigate the mental health and emotional
intelligence of prospective teachers. The sample for the study consisted of 320
prospective teaches selected from 4 B.Ed colleges in and around Thoothukudi. The
results indicated no significant correlation between mental health and emotional
intelligence of prospective teachers.

2. Sarah Basu (2011) studied “Teaching Efficiency and Mental Health of Primary
   School Teachers”

   The present study was undertaken to study the impact of teaching efficiency on the
mental health of primary school teachers. A sample of 225 primary school teachers
from Rohilkhand region was selected. Mental Health Inventory and Teaching
Efficiency Scale were employed to collect the requisite data which was analyzed
using Mean, S.D. and t-test. The findings of the study revealed that efficient teachers
exhibited significantly better mental health as compared to the inefficient teachers.
When demographic factors such as gender, length of teaching experience and locality
were considered, efficient teachers were found to be in possession of significantly
better health than their inefficient colleagues.

3. Vishal Sood and Arti Anand (2011) studied “Mental Health in relation to their
   Level of Emotional Competence”

   The major objective of the present investigation was to study the influence of
emotional competence level of senior secondary school students on their mental
health. It was hypothesized that emotional competence is related to mental health of
students in either way. For verification of the hypotheses, the data were collected by administering ‘Mental Health Inventory’ and ‘Emotional Competence Scale’ on 300 senior secondary school students of Mandi and Hamirpur districts of Himachal Pradesh by adopting convenient sampling technique. Certain descriptive statistics and two-way ANOVA (3 X 2 factorial design) was used for analyzing data. The findings of the present study revealed that emotional competence positively and significantly influenced health of senior secondary school students. No gender and area-wise differences were found to be significant with regard to mental health status of students. Another finding of the present investigation indicated that gender and emotional competence as well as area and emotional competence level interacted significantly with regard to their combined influence on mental health of senior secondary school students.


This study was conducted to know the mental health status of adolescent students in Madurantakam, Kanchipuram Dist, Tamilnadu. The findings revealed that the majority of the sample has average level of mental health. Students from government aided schools, girls’ schools and children who have parents working in private concerns enjoy better mental health than the others.


This investigation is an attempt to study resilience and mental health in adolescents preparing for Engineering / Mental Entrance Examinations in Varanasi India. 200 adolescents (mean age = 18.36) experiencing high academic adversity were chosen from a larger group of 566. This was done by selection of those adolescents who scored above Q3 on the Academic Adversity Scale, developed during the research work. The resilience of these 200 adolescents was assessed through administration of the Resilience Scale (Mampane, 2005). The sample was divided into high resilience (HR) and low resilience (LR) groups through a median split of the resilience scores. Mental Health of the sample was assessed by administration of the Indian adaptation of Goldberg’s (1972). General health Questionnaire by Singh (2000) was used for this investigation. The results revealed a significant gender
difference on resilience scores, with males reporting better resilience scores than females. In addition to this, it was found that HR males have been found to process significantly better mental health than their LR counterparts.


The purpose of the study was framed to investigate mental health of adolescents who are at risk of developing depression in future and those who are not affected by such symptoms. The Sample of the study comprised 300 students 14-18 yrs studied from secondary school Varanasi. The tests used in this study were Depression symptom Checklist and Beck Depression Inventory. The group depression ‘at risk’ (n=21) was defined on the basis of cut off scores while vulnerable group was screened with additional information of lack of impulse control among the lower criteria point of depression (n=21). A matching control group of equal number of subjects was also included in the study. Mental Health Inventory was administered on all the three groups. The results obtained from ANOVA revealed significant difference between group effect in the areas of positive self evaluation, integration of personality, group-oriented attitude, autonomy and environmental mastery.


The objective of the study were, i) To find out the Mental Health of Higher Secondary students, ii) To find out the significant difference if any in the Mental Health of Higher Secondary students with the variable (a) Gender, (b) Language of Instruction, (c) Locality, (d) Religion, (e) Family Income, iii) To find out Academic Achievement in English of Higher Secondary students. iv) To find out the Correlation between Mental Health and Academic Achievement in English of Higher Secondary Students. 250 students studying in XI standard are taken as the sample. The tools of the study were “Mental Health Inventory” developed by Jegadeesh Srivasta and “Achievement Test in English” developed and standarize by the Investigator. ‘t’ test, ‘F’- test, Correlation and Percentage Analysis were the tools used to analyze the data. The Major Findings were, i) There is no significant difference in the Mental Health of the students and Academic Achievement of Higher Secondary class with reference to
variables Gender, Locality of the Institution and family income, ii) There is significant difference in the Mental Health of Higher Secondary students of different religions, iii) There is significant relationship between the Academic Achievement of Higher Secondary students in English and their Mental Health.


The Objectives of the study were, i) To study the Mental Health status of VIII Standard students of Kerala, and ii) To explore the relationship between Mental Health status and locus of control of VIII standard students of Kerala. Normative Survey Method was adopted for the present study 450 English Standard on the basic of disproportionate stratified sampling technique. The tools of the study were the Mental Health status scale development by Abraham and Prasanna 1981 and Malayalam version of Rotter’s Internal – External locus of control scale was developed by Rotter (1966) ‘t’ test and Correlation were used to analyze the data. The major findings were i) there is no significant differences exist between the gender groups with respect to the Mental Health status of VIII Standard students of Kerala. ii) Majority of VIII Standard students of Kerala do not have high Mental Health status, iii) There is no significant Correlation among Mental Health status, internal locus of control and Achievement in English of VIII Standard students of Kerala.


To find out Mental Health has any impact on the burnout levels of school and college teachers. The sample comprised of 640 schools and college teachers of 4 districts of eastern UP. It was drawn through random sampling technique. The tools of the study were (i) burnout scale by Dr. Tripte Hatwal and (ii) Mithila Mental Health Status Inventory. The major findings were i) Mental health varies significantly according to factors like stressful life events, intelligence, role base stress, job satisfaction, personality etc. ii) Mental Health is a variable, which is intensively correlated with the burnout tendency.

The objective of the study is to study Mental Health awareness among the college students of Tuticorin area. The investigator has selected survey method for collecting data for this study. 250 samples were selected randomly development by Jagdish and A.K. Srivastava (1997) was used. The major findings were (i) There is a significant difference between the mean scores of male and female college students regarding Mental Health awareness dimensions, positive self evaluation, group oriented attitudes and environment mastery, ii. There is a significant difference between the mean scores of women and co-education college students regarding Mental Health awareness dimension autonomy.

11. Srividhya, V (2007) studied “Mental health and adjustment problems of students of Navodaya, Central and State schools”.

The purpose of the study was to investigate mental health and adjustment problems of students of Navodaya Central and state schools. The sample consisted of 233 adolescents was selected. The final sample constituted 227 adolescents after the deletion of six subjects due to inadequate information. Research tools used for data collection were Mental Health inventory developed by Jagadish and Srivastava (1983) problem check list developed by Joshi and Pandey (2005), General information schedule. Majority of students (45.4 per cent) had average mental health while minimum percentage (6.6 per cent) had good mental health, none in very good category and more than 2/5th had poor mental health. Students of different educational systems did not differ significantly by the levels of components of mental health such as positive self evaluation, perception of reality, integration of personality, autonomy, group oriented attitude and environmental mastery. Boys and girl did not differ significantly on mental health, but girls of Central school had better mental health compared to boy of Central school. Scheduled caste/tribe students had significant poor mental health than other category students, but religion had no influence on mental health. The more the problems students faced the lower was the mental health.

The purpose of the study was to investigate emotional intelligence, quality of life and mental health status of parents of children with special needs. There is significant difference between parents of children with special needs and parents of normal on the study variable mental health status. Sample 400 parents of children with special need studied. The tools used in the study were emotional intelligence (1998) Jayaraj, B. & Dr.Sam Sananda Raj. Findings of the study indicate that there is significant difference in mental health status between the study groups of Kerala & Dubai on the basis of education. There will be significant difference among the study group on the basis of nationally / locality on attitude towards self, self actualization, perception of reality environmental mastery and Mental Health total. There will be significant difference between parents of children with special needs and parents normal on the study variable mental health status.


The purpose of the study was to find out the mental health of tsunami affected adolescent orphan children and the influence of mental health as the determinant of their academic achievement. The sample comprised 80 adolescent orphan children. 52 boys & 28 girls between age group 9 to 15. The mental health tool was constructed by Srivasthava. A.K (2003) used to measure mental health. Findings of the present study indicate that there is a high significant relationship between the mental health & academic achievement of Tsunami affected adolescent orphan child. The level of mental health status of Tsunami affected orphan children were found too low.


The objectives of the study were (i) to find out the gender and group differences in teaching competency and Mental Health status of student teachers in DIET. (ii) To find out the relationship between teaching competency Mental Health status of students teachers in DIET. The sample consisted of 150 men student teachers and 150 women student teachers of DIET. The tools used were, (i) Mental Health Status Scale
development by Abraham M. and K. C. B. Prasanna (ii) Teaching Competency Assessment scale development by the investigator. ‘t’ test and correlation were used to analyze the data. The study revealed that the Mental Health and teaching competency are correlation.


The objectives of the study were to investigate the significant difference between optimistic and pessimistic students in terms of Mental Health and personality adjustment. The study was conducted with 150 students in which 75 were male and 75 were female students. The tools used in this study were optimistic, pessimist attitude scale by S. Parasha and Mithila, Mental Health status inventory by Anand Kumar and personality adjustment inventory by C.P. Sharma. The major findings were that the optimistic students significantly differ from pessimistic students on personality adjustment.


The objectives of the study were (i) To compare six measures of Mental Health namely overall personal well being, anxiety factor disability systems, capacity to establish constructive relationships and capacity to cope with the ordinary demands and others of life among secondary school principals with respect to administrative experience as well as total service in teaching, (ii) To compare the Mental Health of the secondary school principals in relation to number of teachers, number of pupils as well as educational quality level of their schools. The study was conducted on a sample of 60 Government Secondary School principals. The major findings of the study were (ii) The Mental Health Scores indicated that there was not very significant difference among principals according to various categories of number of teachers in their schools.

17. Ojiha (2002) conducted a study on “Social anxiety and mental health of normal and physically challenged adolescents.”

The purpose of the study was to compare social anxiety and mental health of normal and physically challenged adolescents. The sample constituted of 60 subjects.
(15 orthopedically challenged female and matched control group of normal adolescents) randomly selected from different located in Varanasi. Mental health inventory Jadadish and Srivastava, (1983) was administered to measured mental health. With regard to mental health normal group and orthopedically challenged group showed no significant difference.


Secondary education plays a predominant role in shaping children for the future society. Children with high emotional intelligence and mental health could possess better understanding with their peers and adequate adjustment well in the society. Moreover it helps the individuals to maximize potentialities of individuals to the fullest extent. This article deals with the significance of emotional intelligence and mental health in learning process at secondary schools. The techniques are suggested to enhance the emotional intelligence and mental health which are essential for secondary school students for better adjustment and scholastic achievement.

IV. CREATIVITY RELATED TO PHYSICAL FITNESS


Shobe's team tested 62 participants on a version of the "Alternative Uses Test", a divergent thinking challenge that involves dreaming up unconventional uses for everyday objects such as bricks and newspapers. An important factor that the researchers took note of was the participants' handedness. After an initial attempt at the creativity task, half the participants spent thirty seconds shifting their eyes horizontally back and forth. This exercise is thought to help increase inter-hemispheric communication. The remaining participants acted as controls and just stared straight ahead for 30 seconds. The key finding is that on their second creativity attempt, strong-handers who'd performed the horizontal eye movements subsequently showed a significant improvement in their creativity, in terms of being more original and coming up with more categories of use. Staring straight ahead, by contrast, had no effect on creativity. "Our findings may not apply to more unique populations who are characterized as 'highly creative','" the researchers said, "nor can we conclude ... that
the thirty seconds bilateral eye movement task will turn an average individual into an artist, poet, scientist, philosopher, actor or sculptor. However, we certainly do propose that the ... eye movement task will result in a temporary increase in strong-hander's ability to think of creative uses for various house-hold objects."These new findings complement research published in 2008 showing that horizontal eye movements aid memory performance for strongly-right handed people, but impair the performance of left-handers and mixed-handers.


The potential effects of aerobic exercise on creative potential were explored both immediately following moderate aerobic exercise and after a two hour lag. Sixty college students participated in an experiment consisting of three regimens varying the time when a Torrance Test of Creative Thinking was taken in relation to exercise completion. The results supported the hypotheses that creative potential will be greater upon completion of moderate aerobic exercise than when not preceded by exercise (immediate effects), that creative potential will be greater following a two hour lag time following exercise than when not preceded by exercise (residual effects), and that creative potential will not be significantly different immediately following exercise than after a two hour lag time following exercise (enduring residual effects). Limitations and implications for future research were discussed.

V. CREATIVITY RELATED TO MENTAL HEALTH

1. C.V.Raman Kumar Naik Pramod (2011) conducted “A Study of Creativity In Relation to Mental Health of Class-X Students.”

Creativity is the paramount importance, particularly in the present dynamic society. Creativity is expected to be more possible in a harmonious and sound state of mind where mental health might play a significant role to make a child creative. Keeping in view, the importance of creativity in school and to make the child creative, it is presumed that mental health plays an important role. That’s why we undertook the topic. The main objective the topic is to find out the correlation between creativity score of high creative of high school students with their mental health. A sample size
of 150 students’ comprises of 75 boys and 75 girls were selected for the study. Tripathy’s Test of Creativity by S. Tripathy & R.C.E.B. Mental Health Scale by S.P.Anand is used for the study. No significant relation was found between high creative of students with their mental health

2. Dhuria, M Sharma, N Taneja, DK Kumar, R Ingle, GK (2009) studied “Assessment of Mental Health Status of Senior Secondary School Children in Delhi”

This study aimed to assess the mental health status and some determinants in senior secondary school children in Delhi. A cross-sectional study was carried out on a sample of 458 children, selected by 2-stage sampling. Goldberg's General Health Questionnaire containing 60 items (GHQ-60) was used for assessment of mental health. GHQ was administered to 239 boys and 219 girls in the age group of 15 to 20 years. Of 458 students, 113 (24.7%) had a score $\geq$ 16, the cutoff score, indicating mental morbidity among them. Among boys and girls, 28.5% and 20.5%, respectively, had some component of mental morbidity. Morbidity was significantly higher in children hailing from nuclear families and among children who had either failed or those who had scored highest in the class. Mental health needs of schoolchildren need to be addressed by the school health services.

3. P. Shukla (2009) studied “Mental Health Status and Adjustment Problem of Tribal Girls”

In this an attempt has been made to see the mental health and adjustment problem of tribal girls. A sample of 60 tribal girls residing in Raipur city of Chhattisgarh, ranging between the age group of 13-22 years were taken from two different tribal hostels (i.e. Sabari Ashram and SC/ST Girls hostel kalibari), and were administered the Mental Health and Youth Problem Inventory. Findings indicated that a negative relationship existed between dimensions of mental health and youth problems namely, school / college problem with emotional stability, social problem with emotional stability and personal problem with overall adjustment. Further a significant positive relationship exists between dimensions of youth problems namely family with personal, school with social and personal.
4. Khosravani S., Gilani B (2007) conducted a study on “Creativity and Mental Health”

The results showed a significant relationship between creativity and different aspects of mental health, namely anxiety, depression, self-esteem and perceived stress. More specifically, creative subjects were less anxious and less depressed; they experienced less stress and had a higher self-esteem. Moreover, regression analysis indicated that only the originality factor of creativity predicted the depression and perceived stress scores. The results of ANOVA on creativity scores of subjects from different faculties indicated that the subjects from the faculty of Fine Arts were significantly more creative than their counterparts in the faculty of Literature and Human sciences.

2.05. STUDIES CONDUCTED ABROAD

I. STUDIES ON CREATIVITY

1. Hannah Steinberg, Elizabeth A Sykes, Tim Moss, Susan Lowery, Nick Le Boutillier, Alison Dewey (2014) conducted a study on “Exercise enhances creativity independently of Mood”

Analysis of variance showed a large and significant increase in positive mood after exercise (P<0.001) and a significant decrease in positive mood after video watching (P<0.001). A significant increase between the creative thinking scores of the two conditions was found on the flexibility (variety of responses) measure (P<0.05). A multi factorial analysis of all data failed to show a significant covariance of creative thinking with the two measures of mood (P>0.05). These results suggest that mood and creativity were improved by physical exercise independently of each other.

2. Yi, Xinfu; Hu, Weiping; Plucker, Jonathan A.; McWilliams, Jenna (2013) conducted a study on “Is There a Developmental Slump in Creativity in China? The Relationship between Organizational Climate and Creativity Development in Chinese Adolescents”.

The major objectives of this study were to determine the characteristics of creativity development of Chinese children, the creative organizational climate of Chinese schools, and the relations among them. The results provided evidence that the
creativity scores of children in elementary school were significantly higher than those of children in middle school. The teachers' evaluation of the creative organizational climate of the elementary school was significantly higher than that of the middle school. When the two variables were analyzed together, both the creative organizational climate of schools and the creative thinking development of children decreased during the children's development. Moreover, the creativity and climate scores were highly correlated, and the results from a path analysis suggested that a school's creative organizational climate has a significant impact on all seven dimensions of creativity measured in this study.

3. **Hu, Weiping; Wu, Baojun; Jia, Xiaojuan; Yi, Xinf; Duan, Chunyan; Meyer, Winter; Kaufman, James C (2013)** conducted a study on “Increasing Students' Scientific Creativity: The "Learn to Think" Intervention Program”

The "Learn to Think" (LTT) Intervention Program was developed for raising thinking abilities of primary and secondary school students. It has been implemented in more than 300 schools, and more than 200,000 students took part in the experiment over a 10"year span. Several longitudinal intervention studies showed that LTT could promote the development of students' thinking ability, learning motivation, and learning strategy as well as raise academic performance in primary schools. This article describes a study of the influence and the delayed effects of LTT on the scientific creativity of secondary school students. One hundred and seven students were selected from a secondary school, 54 of them participated in the LTT every 2 weeks and the rest had not. The intervention lasted 2 years, and the delayed effect was explored half a year after terminating the intervention. The Scientific Creativity Test for Secondary School Students was used four times from pre-test to delay post-test. The results indicated that the LTT did promote the development of scientific creativity of secondary school students, and the effects on the scientific creativity were not necessarily immediate, but tended to be long-lasting.

4. **Fearon, Danielle D., Copeland, Daelynn, Sexon, Terrill F. (2013)** Studied “The Relationship between Parenting Styles and Creativity in a Sample of Jamaican Children”

The purpose of this study was to examine the relationship between parenting styles and creativity among a sample of Jamaican students and their parents. A total of
54 parents and 66 students participated in the study. Results revealed that the authoritarian style of parenting is the most salient predictor of creativity in children and that this relationship was negative. In addition, parents' level of creativity was greater than that of their children and was also predictive of children's level of creativity. The creativity level of children in the sample was lower than that of the normative sample. Because creativity is linked to critical thinking, the implication of this study is especially pertinent to the Jamaican population, which is noted for its authoritarian style of parenting. Relationship between Parenting Styles and Creativity in a Sample of Jamaican Children

5. Holmes, Robyn M.; Romeo, Lynn (2013) conducted a study on “Gender, Play, Language, and Creativity in Preschoolers”

The study reveals that gender and school setting influenced children's language abilities and social play. Children in the preschool that engaged in pretend play with greater frequency performed well on the receptive vocabulary test. We also found that certain classroom areas generated different types of social play. We discuss the applied value of our findings as these relate to future research.

6. Canning, Natalie (2013) conducted a study on "Where's the Bear? Over There!"--Creative Thinking and Imagination in Den Making”.

The research explores the way in which an outdoor environment can support flexible opportunities and resources where children are able to engage in imaginative and creative play, develop their communication skills and build relationships with other children and adults. The research considers children's fascination with the story "bears in the wood" and how early years practitioners facilitated their creative thinking and imagination.


Provides an account of what creativity really means in the context of children's learning in the primary school, and describes in practical terms what teachers can do to foster it. At a time of curriculum development and change, it focuses on the opportunity to build a new curriculum that is inclusive of creativity and is fit for the twenty-first century. The value of fostering creative thinking and problem solving
abilities in education is widely recognized for its capacity to confer an independence and ability to function effectively in life. As such, encouraging children to be creative thinkers and problem solvers should be an integral part of everyday teaching and learning across all subjects. Building upon the research and practices of a group of educators studying creativity across the curriculum and coordinated by the author, this book provides primary teachers and trainee teachers with easy to understand explanations of what creativity means in the context of the subjects of the curriculum for young children. It introduces ideas for how to nurture and support it, and explores issues associated with fostering it, such as assessment.

8. **Mohamed, Ahmed; Maker, C. June; Lubart, Todd(2012)** conducted a study on “Exploring the Domain Specificity of Creativity in Children: The Relationship between a Non-Verbal Creative Production Test and Creative Problem-Solving Activities”

Creativity has both domain-specific and domain-general aspects, but that the domain-specific component seemed more prominent. One implication of these results is that educators should consider assessing creativity in specific domains to place students in special programs for gifted students rather than relying only on domain-general measures of divergent thinking or creativity.

9. **Newton, Lynn; Beverton, Sue (2012)** conducted a study on “Pre-Service Teachers' Conceptions of Creativity in Elementary School English”

Conceptions of creativity in English were found to be limited, focused mainly on naive views of story writing and dramatic activity. Responses indicated that they were often unable to distinguish clearly between the concept of creativity, an example of its occurrence in the classroom, and what feature of that example made it creative. Consequently, their limited constructions of creativity were confused. It is important that teachers in schools as well as those responsible for training teachers in universities are advised that trainees' conceptions of creativity in English may be inadequate in several respects and that they may not recognize opportunities for creativity. Pre-service training programmes could well benefit from structured courses on the forms and applications of creativity.
10. **Muhammad Nadeem Anwar, Muhammad Aness (2012)** conducted a study entitled “Relationship of Creative Thinking with the Academic Achievements of Secondary School Students.”

The major purpose of the present study was to explore the relationship between Creative Thinking and Academic Achievements of Secondary School Students. The study was conducted using survey design method. A total number of 256 students participated in the study. Participants were selected using random table. Torrance Tests of Creative Thinking [TTCT] was used to measure creative potential of participants on four elements. Pearson Correlation and one-way ANOVA were to verify hypothesis. Results revealed a statistically significant relationship between i) creative thinking and students’ academic achievements on different aspects of test of creative thinking, ii) creative thinking and academic achievements. However, the relationship could be altered when different level of academic achievement is examined and when creative thinking measure employed. The study has considerable implications for education as a whole.

11. **Hoffmann, Jessica Russ, Sandra (2012)** studied “Pretend Play, Creativity, and Emotion Regulation in Children”

The aim of this study was to examine relationships among pretend play, creativity, emotion regulation, and executive functioning in children. Pretend play processes were assessed using the Affect in Play Scale (APS), which measures children's cognitive and affective processes, such as organization of a plot or use of emotions. Sixty-one female participants, in kindergarten through fourth grade, were assessed using the APS to measure pretend play ability, a divergent thinking task (the Alternate Uses Test), a storytelling task to assess creativity, a measure of executive functioning (the Wisconsin Card Sorting Task, Short Form; WCST-64), and parent report on the Emotion Regulation Checklist (ERC). Using correlation analyses, pretend play significantly related to creativity as measured by divergent thinking and storytelling, and related to emotion regulation. Affect expression in play was significantly related to affect expression in storytelling suggesting cross-situational stability. Divergent thinking ability was significantly related to creativity in storytelling. In general the magnitudes of the correlations were of medium effect size.
No significant relationships were found with executive functioning. The results of this study support theories that suggest play, creativity, and emotion regulation are linked.


The past two decades have been an exciting and productive time for research with children and teenagers, with many studies at the forefront of developing research practices infused with creativity and innovation. Such approaches are often participatory, using methods that draw upon and incorporate children and teenagers’ diverse skills and interests to foster active participation in the research process. Similarly, innovation and adaptation feature as trademarks of much qualitative longitudinal research that is, by its very nature, dynamic and evolving. Utilizing personal reflection and participant feedback, this paper draws on an ongoing qualitative longitudinal study with over 50 children and teenagers to contemplate the potentials and pitfalls involved in the long-term use of creative methods and approaches. In doing so, it focuses on three elements of the research process, namely participant involvement, data collection and analysis and dissemination, to explore the evolving nature of creativity in qualitative longitudinal research.


This article presents the results of a study comparing the originality, the length, the number of neologisms and the syntactic complexity of fairy tales created with "Storyline" and "Associations Pyramid." Both methods were developed to enhance children's language abilities and their creative thinking. One hundred twenty eight 5-year-old children were asked to tell stories using either the "Storyline" (SL) or the "Associations Pyramid" (AP) method during four routine class activities. Participants worked in 14 groups, five participants per group. The results showed that stories developed with SL and AP methods are comparably original, however more original than stories developed individually. (C) 2011 Elsevier Ltd. All rights reserved.
In the last 15 years there has been an increased emphasis in both educational research and curriculum development upon investigating children's perspectives of their experience of learning. Children naturally have very particular and important insights to offer in helping us to develop our understanding of teaching and learning. However, research into children's perceptions in the field of primary Design & Technology education is still at a very early stage (Lunt in International handbook of research and development in technology education, Sense Publishers, Utrecht, 2009a). For example, in three reviews of educational research in Design & Technology (Kimbell in A guide to educational research, The Woburn Publishers, London, 1996; Eggleston in Teaching and learning design and technology: a guide to recent research and its applications, Continuum, London, 2000; Harris and Wilson in Designs on the curriculum? A review of the literature on the impact of design and technology in schools, Department for Education and Skills, London, 2003) there are only passing references made to eliciting and considering pupils' views and, in the studies where it does occur, it is used as a supplementary method of data collection rather than as a focus of research. The work which exists is small-scale and the majority of studies relate to secondary-aged pupils. The research that we have recently undertaken has tried to redress this gap. It has focused on primary children's (aged 9-11 years) perceptions of Design & Technology in general (Benson and Lunt in PATT 18 international conference on design and technology educational research: teaching and learning technological literacy in the classroom, University of Glasgow, Glasgow, 2007) and latterly creativity in Design & Technology. It has been claimed by many that Design & Technology is a 'creative' subject which develops children's creative abilities. This is a bold claim and one that needs careful consideration. This paper sets out a framework for thinking about creativity drawn from a review of the literature and uses evidence of children's perceptions of their experience of Design & Technology to compare practice with theory in an attempt to raise questions and issues relevant to both policy and practice.
15. **Newton, Lynn; Newton, Douglas (2010)** conducted a study on “Creative Thinking and Teaching for Creativity in Elementary School Science”

This study found that teachers generally distinguish between creative and reproductive (as in mimetic) activities, but tend to promote narrow conceptions of creativity in school science, where fact-finding and practical activities are prominent. Some teachers identify creativity in reproductive activities as well as on the basis of what simply stimulates student interest and generates on-task discussion. Study #3 is designed to check pre-service teachers' conceptions of scientific creativity through an assessment of creative elements in children's explanations of simple scientific events. This study found little agreement in teachers' personal assessments of creativity.


Two experiments examined the possible link between magical thinking and creativity in preschool children. In Exp. 1, 4- and 6-yr.-old children were shown a film with either a magical or non magical theme. Results indicated that the mean scores of children shown the magical film was significantly higher than that of children watching the non magical film on the majority of subsequent creativity tests for both age groups. This trend was also found for 6-yr.-olds' drawings of impossible items. In Exp. 2, Exp. 1 was replicated successfully with 6- and 8-yr.-old children. Exposing children to a film with a magical theme did not affect their beliefs about magic. The results were interpreted to accentuate the role of magical thinking in children's cognitive development. Classroom implications of the results were also discussed.

17. **Bolden, David S.; Harries, Tony V.; Newton, Douglas P (2010)** conducted a study on ‘Pre-Service Primary Teachers' Conceptions of Creativity in Mathematics”

Analysis of the responses indicated that pre-service teacher' conceptions were narrow, predominantly associated with the use of resources and technology and bound up with the idea of "teaching creatively" rather than "teaching for creativity". Conceptions became less narrow as pre-service teachers were preparing to enter schools as newly qualified, but they still had difficulty in identifying ways of
encouraging and assessing creativity in the classroom. This difficulty suggests that conceptions of creativity need to be addressed and developed directly during pre-service education if teachers are to meet the expectations of government as set out in the above documents.

17. **Cheung, PC Lau, S (2010)** studied “Gender Differences in the Creativity of Hong Kong School Children: Comparison by Using the New Electronic Wallach-Kogan Creativity Tests”

   Gender differences in creativity scores of the Wallach-Kogan Creativity Tests were found for a sample of 2476 4th- to 9th-graders from 8 primary schools and 4 secondary schools in Hong Kong. Specifically, girls in the junior high grades excelled boys in verbal flexibility, figural fluency, figural flexibility, figural uniqueness, and figural unusualness. These findings contrasted with previous findings of no gender differences in a normative study of the same instrument carried out eight years before this study. The gender differences were explained in terms of environmental effect and cultural effect.

18. **Hamlen, Karla R. (2009)** conducted a study on “Relationships between Computer and Video Game Play and Creativity among Upper Elementary School Students”.

   This study explored relationships between time spent playing video games in a typical week and general creativity, as measured by a common assessment. One hundred eighteen students in 4th and 5th grades answered questions about their video game play and completed the Torrance Tests of Creative Thinking (Torrance, Orlow, & Safter, 1990). While significant relationships were found between creativity and two variables (gender and grade), no significant relationship was found between time spent playing video games in a typical week and creativity, when controlling for gender and grade. Additional analyses examined relationships of creativity with skills used in video games and context in which the games were typically played and these also did not reveal significant relationships. This study provides initial evidence that video game play may not, in fact, influence children's general creativity levels.
19. **Newton, D. P.; Newton, L. D(2009)** conducted a study on “Some Student Teachers' Conceptions of Creativity in School Science”

Creativity is generally considered to be something to encourage in young children. It is, however, popularly associated more with the arts than with the sciences. This study used phenomenographic analysis to identify some primary school student teachers' conceptions of creativity in school science lessons (a class of 16 final year students on a degree course leading to qualified teacher status in the UK). Their conceptions were narrow, focused mainly on practical investigations of matters of fact, and included misconceptions. Teacher trainers are advised that student teachers' conceptions of creativity can be grossly inadequate in several ways and they may omit significant opportunities for creativity involving, for example, the imaginative processing of scientific information and the construction and testing of explanations. As conceptions may be shaped by creativity in the arts, it is suggested that science educators might loosen the connection by introducing students to the broader term of "productive thought", i.e. a combination of creativity and critical thought which is particularly relevant in science.

20. **Mullineaux, Paula Y.; Dilalla, Lisabeth F (2009)** conducted a study on “Preschool Pretend Play Behaviors and Early Adolescent Creativity”

Individual differences in creativity across the lifespan have been identified, but little research has focused on the development of creativity during early adolescence. This project examined individual differences on two measures of creativity in early adolescence as well as the predictability of adolescent creativity from pretend play behaviours during the preschool years. Realistic role-play behaviour was assessed at age 5 for 127 children who later completed two creative thinking tasks (TCT-DP and the Alternative Uses Measure) when the children were 10-15 years of age. Realistic role-play when the children were age 5 significantly predicted their scores during early adolescence on the Alternative Uses Measure but not the TCT-DP. Significant sex differences were found for amount of time engaged in realistic role-play at age 5 and performance on the TCT-DP, with girls engaging in more role-play at age 5 and scoring higher on the TCT-DP during early adolescence than boys. No sex differences were observed for the Alternative Uses Measure. These results suggest that preschool
role-play behaviours represent early creativity and are tapping aspects of creativity development that are manifested in early adolescence.


Currently, creativity may not be a primary focus at National Art Education Association conferences or in its publications. There are recent indications that art education is a site where creativity can be developed and nurtured for all students with emphasis on both individual processes and cultural practices. It is advocated that through critical analysis of concepts related to art education and creativity that research and practice can be developed to cultivate creative education for all art students. Topics discussed in this article, related to reconsidering creativity, include the history of creativity in art education, definitions of creativity, assessment of creative processes, dispositional factors and creative individuals, cultural variability and creativity, and educational interventions that promote student creativity.

22. Duran, M (2009) studied “Creativity In The Spontaneous Culture Of Children And Youth”

In the tradition of spontaneous culture of children and youth there are various genres of collective creativity which are created. Altered, engaged ill and passed on from generation to generation during middle childhood and early adolescence: games, Jokes, stories, songs, autograph books codes of behavior. Secret languages, fortune telling, magic, secret erotic folklore, dare, diaries, scrapbooks, etc. These modes of creativity satisfy some developmental needs and are reflected in many generations according to the principles that apply to creations belonging to folk culture (anonymity. various variants, innovation, reinterpretation. transformation. etc.). The tenacity of these subculture creations is apparent not only in their duration but also in their adaptability to the spirit of the times. Creations of children's and youth subcultures require an interdisciplinary approach. as well as the interest of developmental psychologists. The theory of Lev S. Vygotsky was applied in the analysis, as a broader theoretical framework of developmental psychology. Based on numerous previous investigations. This paper examines certain creations from the tradition of spontaneous culture of children and youth, with a particular emphasis on fun superstitions that can be viewed in relation to similar phenomena outside Croatia.
23. Daugherty, M White, CS (2008) studied “Relationships among private speech and creativity in head start and low-socioeconomic status preschool children”

The purpose of this study was to explore Vygotsky's notion of private speech as a cognitive self-regulatory process and how it related to creativity measures among at-risk children. Thirty-two Head Start and state-funded Pre-K children completed the Torrance creativity test Thinking Creatively in Action and Movement (TCAM). The children's private speech was collected in an open play context and while children completed structured logical-mathematical activities. Results revealed that both originality and fluency creativity were related to self-direction private speech and grand total private speech. Findings support that cognitive self-regulating private speech may be related to creative thinking and that private speech may offer a method for assessing early creative thinking in children from various cultural and economic backgrounds.

24. Banzeliuk, EI (2008) studied “Age dynamics of creativity in children aged from 6 to 9”

The paper focuses on a yet uninvestigated aspect of dynamics of creativity indices of P. Torrance's creative thinking test (the figure variety) during transition from preschool to school age. The findings indicate that while studying creative capacity it is necessary to take into account all components of the activity being performed (beginning with the psycho physiological one), and that it is incorrect to compare results of 6-7-8-9-year-old children without yearly standardization of data.


This paper looks at the collaborative construction of web pages in History by a Year-4 group of children in a primary school in the UK. The aim of this paper is to find out: (a) How did children interpret their involvement in this literacy practice? (b) How the construction of web pages was interactionally accomplished? And (c) How can creativity be identified in interaction? Using an ethnographic approach to the study of communication, it is argued that the collective and creative construction of meaning can be understood in terms of relationships amongst components of communicative acts. The analysis of these components reveals how participants shape
their utterances as they are engaged in the pursuit of shared goals in a situated activity system. It is argued that participants strive to become members of a community of practice designing web pages. Members of this community showed their understanding in relation to the way they interpreted the design rules for a multimodal text, the means for working together in collaboration and distributing roles, as well as their interpretation of what counts as historical knowledge. Also, in terms of creativity, participants managed to communicate and negotiate their intentions by using several figures of speech and language games, as well as contextually framing their positions as participants in a dialogue. That is, children and teacher demonstrated their creative abilities in a textual, contextual and critical level. It is concluded that creativity is not a gifted capacity; it is an everyday act which is interactionally accomplished in the context of social participation as members of a community. Members creatively display their intentions and negotiate new alternatives for the interpretation of actions in situated activity systems.

26. Chan, David W.; Chan, Lai-kwan (2007) conducted a study on “Creativity and Drawing Abilities of Chinese Students in Hong Kong: Is There a Connection?”

 Judges agreed more on their ratings on students' drawing abilities than on students' creativity. Judged drawing abilities and creativity were found to be moderately but significantly correlated. While judged drawing abilities were found to correlate significantly with students' self-reported artistic characteristics and drawing activities, judged creativity was found to correlate minimally with these variables. Conclusion: This study provided supportive evidence on the connection between drawing abilities and creativity. The findings also suggested that creativity enhancement via increasing participation in drawing activities and heightening awareness of artistic characteristics could be mediated by increased drawing abilities

27. Tan, Ai-Girl; Ho, Valerie; Yong, Lim-Chyi (2007) conducted a study on “Singapore High School Students' Creativity Efficacy”

 The study reveals that Singaporean high school students' scored moderately high for creativity efficacy. No significant gender difference was observed. Implications of the results of the study were discussed with reference to developing efficacies in the context of creativity education in Asian and Chinese societies.

This work presents the assessment results of a play program designed for stimulating creativity in children. The design used was quasi experimental pretest intervention-posttest with control group. The sample used included 86 children aged 10 and 11 years, 54 experimental and 32 control, distributed in 4 groups. Before and after the program, 2 assessment methods were administered: 7 verbal and figural tasks from Torrance's Tests of Creative Thinking and direct judgment by experts who assessed a creative product. The program consisted of a weekly 2-hr intervention session throughout the school year The program's activities were intended to stimulate verbal, graphic-figural, constructive, and dramatic creativity. Results of the analyses of variance suggest a positive effect of the intervention, as the experimental participants significantly increased their verbal creativity (originality) and graphic-figural creativity (resistance to premature closure, originality, elaboration, creative performance). The program produced a significantly greater change in the experimental participants who showed a low level of creativity before the intervention. The effects of the program were similar in boys and girls.

29. Loveless, Avril; Burton, Jeremy; Turvey, Keith (2006) conducted a study on “Developing Conceptual Frameworks for Creativity, ICT and Teacher Education”

Student teachers’ experience of engaging in creative activities to prepare, teach and evaluate a school-based project, and identified themes of their understandings and personal experience of creativity, the contribution of ICT, and their reflections on professional development. This analysis raises the issue of designing learning experiences, which promote and support creativity with ICT in the context of teacher learning. A conceptual framework to describe creative practices with ICT in teacher education was developed from the study.
30. Ping Chung Chenug, Sing Lue, David W. Chan, William Y. H. Wu (2004) conducted a study on “Creative Potential of School Children in Hong Kong: Norms of the Wallach-Kogan Creativity Tests and Their Implications”

Results of the norming study showed that there was generally an increase with grade level in the mean of various indexes (Fluency, Flexibility, Uniqueness, and Unusualness) of creativity from Grade 1 to Grade 3 (individual administration mode) and from Grade 4 to Grade 9 (group administration mode) for both verbal tests and figural tests, besides a significant drop in the mean of the various indexes of creativity for figural tests in Grade 7. No gender differences in the indexes of creativity were found. The norms of this first norming study of the WKCT not only provide information about the creative potential of the school children in Hong Kong, but also facilitate future cross-cultural comparison of the scores of the WKCT in different cultures and societies.


There has been a growing resurgence of interest in creativity in primary schools which has acted as a counterpoint to some of the more reductivist elements of the introduction of the National Curriculum and associated methods of testing. This article reports on a study of one primary school that has had some significant success in enhancing the creative life of the school and has won the "Arts Mark" for its efforts. The achievements of the school are outlined; the organizational structures that have contributed to the development of creative activity in the school are noted; and lessons to be learned about developing the capacity for creativity in schools are discussed.

32. Jones, Anthony (2004) conducted a study on “Encouraging Creativity with Digital Technology in Early Primary Classrooms”

Australian schools are expected to integrate various uses of digital technology across all subject areas. In many schools the effectiveness of this has been questionable with little application to the development of student's creativity. This paper reports on a pilot study investigating children's creativity during computer-based activities. Examples of children's work from the early years of primary education are presented to illustrate some of the strategies employed by teachers from
a government primary school. These examples focus on students working cooperatively to create simple multimedia products as part of either mathematics or SOSE.


In this research, we normed the Wallach-Kogan Creativity Tests (Wallach & Kogan, 1965) for the school children in Hong Kong. A representative sample of 1418 students (148 1st graders, 155 2nd graders, 159 3rd graders, 163 4th graders, 162 5th graders, 160 6th graders, 162 7th graders, 159 8th graders, and 150 9th graders) was administered a Chinese version of the Wallach-Kogan Creativity Tests (WKCT), developed in a large-scale pilot study. There was some preliminary evidence of reliability and validity of the Chinese version of the WKCT. Results of the norming study showed that there was generally an increase with grade level in the mean of various indexes (Fluency, Flexibility, Uniqueness, and Unusualness) of creativity from Grade 1 to Grade 3 (individual administration mode) and from Grade 4 to Grade 9 (group administration mode) for both verbal tests and figural tests, besides a significant drop in the mean of the various indexes of creativity for figural tests in Grade 7. No gender differences in the indexes of creativity were found. The norms of this first norming study of the WKCT not only provide information about the creative potential of the school children in Hong Kong, but also facilitate future cross-cultural comparison of the scores of the WKCT in different cultures and societies.

34. Han, KS (2003) studied “Domain-specificity of creativity in young children: How quantitative and qualitative data support it”

One of the most controversial issues in contemporary research of creativity, whether a person's creativity is domain-specific or domain-general, was investigated in the present study. This study is composed of two parts, Study 1 and Study 2. In study 1, the relationships among 109 children's creative performances in three domains, and the relationships between those children's general creative thinking skills and their creative performances in three domains have been examined. Study 2 examines how the domain-specificity and -generality issue is addressed in individual children via case studies of three highly creative children, hoping to provide enriching
and qualitative specification to the quantitative data of the present study. In both studies, children's performances in language, art, and math domains were respectively judged by three experts who rated children's creativity on story-telling, collage making, and math word-problem creating tasks. Children's general creative thinking skills were assessed by a battery of two divergent thinking tests, including the Wallach-Kogan Creativity Test (Wallach & Kogan, 1965) and the Real World Divergent Thinking Test adapted from Okuda, Runco, and Berger (1991). The findings of this study support the position that creative ability in young children is rather (but not absolutely) domain-specific.

35. Dianaros Ab. Majid, Ai-Girl Tan, Kay-Cheng Soh (2003) conducted a study entitled “Enhancing Children’s Creativity: An Exploratory Study on Using the Internet and SCAMPER as Creative Writing Tools”

This paper reports on the study of the use of the Internet and SCAMPER in facilitating creative writing. A total of 60 children of primary school age participated voluntarily in a creative writing program. Over a period of one month, in groups, the children learned how to use the Internet and SCAMPER to enhance their creative writing. The findings showed that children who used Internet demonstrated an improvement in their creative writing in terms of fluency and elaboration. On the other hand, children who used SCAMPER did not any obvious improvements in their creative writing. Limitations of the study and suggestions for future research are also presented in their report.


The relationship between self-image and creativity was studied in primary school children. Earlier research points in two directions. Some researchers describe the creative child as well adjusted. Others provide a more nuanced picture in which less well-behaved children can also be creative. Three different measures of creativity were used in this study: the Unusual Uses Test, an activity questionnaire and a perceptual test (the Creative Functioning Test). A self-image inventory was used to measure participants' perceptions of their own skills, physical self, psychological health and relationships to others. The results showed no self-image differences between children with high and low creativity. The creativity measures were
significantly related, with the exception of the flexibility dimension of CFT. One possible explanation is that CFT measured another aspect of creativity. This was illustrated in a cluster analysis in relation to self-image.


Prolonged technique of creativity diagnostics in everyday life conditions is suggested. Using this technique the empirical research was held to study creative behavior of schoolchildren. Creativity manifestation and forming factors in child are revealed. The assessments of creativity using traditional psychodiagnostical techniques (tests) in controlled conditions are compared with children's real creative achievements in everyday life conditions.

II. STUDIES RELATED TO PHYSICAL FITNESS

1. Pesce, Caterina; Faigenbaum, Avery; Crova, Claudia; Marchetti, Rosalba; Bellucci, Mario (2013) Conducted a study on “Benefits of Multi-Sports Physical Education in the Elementary School Context”

The results demonstrated that the multi-sports approach to PE induced more pronounced improvements in aerobic fitness and kinesthetic discrimination ability, as well as small but significant improvements in task orientation, ego orientation and social self-efficacy, when compared to traditional PE taught by a generalist. A multi-sports approach to elementary school PE contributes to the development of children's physical fitness and goal orientations, which support engagement in physical activity. These findings highlight the role of qualified PE specialists and multi-sport, skill-based curricula to obtain positive physical and psychological outcomes that may facilitate the development of a healthy child

2. Wadsworth, Danielle D.; Robinson, Leah E.; Rudisill, Mary E.; Gell, Nancy (2013) conducted a study on “The Effect of Physical Education Climates on Elementary Students' Physical Activity Behaviors”

Results showed that steps/minute were significantly higher for the mastery condition, and participants in the mastery condition spent significantly less time sitting (p less than 0.001) and in management (p less than 0.001) and more time in
moderate-to-vigorous physical activity (MVPA; $p = 0.002$) and fitness activities ($p = 0.001$). Conclusion: Results indicate that a mastery approach, which allows children the opportunity to drive their own physical activity, elicits higher step counts and more time spent in MVPA compared with a performance-oriented approach.


To evaluate the effectiveness of school-based physical activity interventions on fitness, adiposity and cardio metabolic outcomes among schoolchildren. Medline, Embase, EBSCO host CINAHL and ERIC databases were searched up to October 2012. Inclusion criteria: intervention delivered at school with controls having no intervention or usual physical education classes; participants aged 5-18 years; outcomes spanning some or all of the above. We assessed levels of evidence for identified trials based on methodological quality and sample size. Dose of the interventions (a total summary measure of intensity, frequency and duration) were considered. Eighteen randomized controlled trials (RCTs, total participants=6,207) were included, of which six were large, higher quality trials with high dose of the intervention. The intervention was consistent in increasing fitness with large, higher quality studies and high dose of intervention providing strong evidence. Dose of school-based physical activity is an important determinant of trial efficiency. Some large, higher quality RCTs provided strong evidence for interventions to decrease skin-fold thickness, increase fitness and high-density lipoprotein cholesterol. Evidence for body mass index, body fat and waist circumference, blood pressure and triglycerides, low-density lipoprotein cholesterol and total cholesterol remain inconclusive and require additional higher quality studies with high dose of interventions to provide conclusive evidence.


As an increase in pain symptoms among children has been shown in the last decades, the aim of this study was to describe perceptions of recurrent pain, measured
physical fitness and levels of reported physical activity (PA) in children, and to investigate if any associations between PA, fitness and recurrent pain could be identified. A school-based study comprised 206 Swedish children 8-12 years old, 114 boys, 92 girls. A questionnaire with questions about perceived pain, self-reported PA and lifestyle factors was used. Health-related fitness was assessed by 11 physical tests. A physical index was calculated from these tests as a z score. High physical index indicated high fitness and low physical index indicated low fitness. ANOVA test, chi-square test and logistic regression analysis were used to compare active and inactive children. The prevalence of one pain location (head, abdomen or back) was 26%, two 11% and three 4% (n=206). Female gender, living in single-parent families, low PA and low subjective health were associated with reported recurrent pain. Children reporting high levels of PA had high physical index and reported low prevalence of pain symptoms. The physical index and level of self-reported PA decreased gradually the more pain locations. Physically active children had higher fitness levels and reported less pain symptoms than inactive peers. Coping with pain is an integral part of PA, and active children learn to cope with unpleasant body sensations which together with high fitness may reduce the perception of pain.


The primary objective of this study was to evaluate the feasibility and preliminary efficacy of a school-based physical fitness intervention (Fit4Fun) on the physical fitness and physical activity (PA) level of primary school children. A group-randomized controlled trial with a 3-month wait-list control group was conducted in two primary schools in the Hunter Region, NSW, and Australia. Fit4Fun intervention (n = 32 students) or the control (n = 17) conditions. Fit4Fun was an 8-week programme that included: 8 x 60 min health and physical education (HPE) lessons, a break-time activity programme (recess and lunch) and a home fitness programme. The control group participated in their usual weekly 60 min HPE lessons. Assessments were taken at baseline and post-intervention (8-week) to determine changes in health-related fitness (HRF) levels, PA and attitudes towards HRF testing. Objectively measured PA (mean steps/day) was assessed using 7 days of pedometry and HRF was assessed using a battery of tests including: seven-stage sit-up test, push-up test,
basketball throw, wall squat, sit and reach, shoulder stretch, 20 m shuttle test, and height and weight measurements. Intervention effects were assessed using analysis of covariance and Cohen's d effect sizes are reported. Results indicate that a multi-component HRF intervention for primary school children that targeted the three areas of a health-promoting school and incorporated social support for participation in physical fitness activities was feasible and efficacious in improving muscular fitness and flexibility levels of children.

6. Ostergaard, L Kolle, E Steene-Johannessen, J Anderssen, SA Andersen, LB (2013) studied “Cross sectional analysis of the association between mode of school transportation and physical fitness in children and adolescents”

To investigate the associations between body composition, and muscular fitness in relation to travel mode to school in children and adolescents. Children and adolescents from 40 elementary schools and 23 high schools representing all regions in Norway were invited to participate in the study. Anthropometry, cardio respiratory and muscular fitness were tested at the school location. Questionnaires were used in order to register mode of transport to school, age, gender and levels of leisure time physical activity. A total of 1694 children and adolescents at a mean age of 9.6 and 15.6 respectively were analyzed for associations with physical fitness variables. Based on this national representative cross-sectional examination of randomly selected children and adolescents there is evidence that active commuting, especially cycling, is associated with a favorable body composition and better cardio respiratory and muscular fitness as compared to passive commuting.


Children's eating habits have mainly been related to anthropometric characteristics but less is known about their association with physical fitness. 278 French school children (131 boys and 147 girls) filled in eating habit questionnaires and completed anthropometric measurement (weight, height, skinfolds) and physical fitness tests. The 20-m Shuttle run test and the Squat Jump test were used to assess aerobic fitness and anaerobic (lower limb muscle power) fitness respectively. Breakfast consumption was associated with both aerobic fitness (p<0.05)
and lower limb muscle power \((p<0.01)\) while snacking was negatively related to Squat Jump performances \((p<0.05)\). There was no association between physical fitness and either the type of the consumed-beverages or TV watching during dinner and lunch meals. French primary school children physical fitness is associated with their eating habits and decreases with the number of unhealthy eating behaviors cumulated.


To examine modes of commuting to school at baseline and changes in commuting were related to 6-year changes in cardio respiratory fitness in youth. A total of 262 (142 girls) Swedish children (9 years at entry) were measured at baseline (1998/9) and follow-up (2004/5). Mode of commuting to school was assessed by questionnaire and fitness by a maximal bicycle test. At baseline, 34% of children used passive modes of commuting (e.g., car, motorcycle, bus, and train), 54% walked, and 12% bicycled to school. Six years later the percentage of bicyclists increased 19% and the percentage of walkers decreased 19%. On average, children who bicycled to school increased their fitness 13% \((p=0.03)\) more than those who used passive modes and 20% \((p = 0.002)\) more than those who walked. Children who used passive modes or walked at baseline and bicycled to school at 6 years later increased their fitness 14% \((p = 0.001)\) more than those who remained using passive modes or walking at follow-up. Implementing initiatives that encourage bicycling to school may be a useful strategy to increase cardio respiratory fitness of children.


Over the 2-decade period the boys from eastern Poland slightly improved their results only as far as sit-ups are concerned (1.47 points), while the level of bent arm hang, handgrip, 50 m run, and shuttle run 4x10 m remained the same. In contrast, negative changes were observed in the long run (4.44 points), the sit-and-reach test (4.47 points), and the standing broad jump (3.74 points). The greatest decline in motor
abilities was noted amongst schoolchildren from integrated education classes (2.69 points); whereas the smallest decline was noted in adolescents from lower secondary schools (0.60 points). Conclusions: The changes noted in physical fitness indicate that in the of health the revision of the Act on Physical Culture from 2002, which reduced the number of school's physical education classes, is a debatable issue.

10. Kamla, James; Snyder, Ben; Tanner, Lori; Wash, Pamela (2012) conducted a study on “Are Physical Education Majors Models for Fitness”?

The National Association of Sport and Physical Education (NASPE) (2002) has taken a firm stance on the importance of adequate fitness levels of physical education teachers stating that they have the responsibility to model an active lifestyle and to promote fitness behaviors. Since the NASPE declaration, national initiatives like Let's Move (Obama, 2011) and the U.S. Department of Agriculture's (USDA) Nutrition Standards for School Meals (2012) have further elevated the need for physical education teachers to serve as fitness leaders. In response to this national attention, this study compared fitness levels of Physical Education Teacher Education (PETE) majors to non-PETE majors using six physical fitness tests. The results yielded that PETE majors, with the exception of the one-mile run, are not significantly more fit. Therefore, the timeliness of these results should serve to further raise the awareness of physical education teacher preparation institutions.

11. Golubovic, Spela; Maksimovic, Jasna; Golubovic, Boris; Glumbic, Nenad (2012) conducted a study on “The effects of carefully designed physical exercise programs on the development of physical fitness in children with ID”

This paper presents the results of the study which examined the effects of carefully designed physical exercise programs on the development of physical fitness in children with ID. The study sample consisted of 42 children with ID and 45 typically developing children. All the participants were assessed using Euro fit Test Battery. The results were analyzed in terms of participation in the exercise program and level of intellectual functioning. While ID children scored significantly lower on fitness tests when compared with typically developing children, the study revealed an association between degree of ID and physical fitness.

The impact of exergaming on in-class physical activity (PA) and motivation in physical education. Elementary children participated in a 4-week exergaming unit and a 4-week fitness unit. A t test showed the children's in-class PA in the exergaming unit was significantly lower than in the fitness unit. Results also indicated that students' situational interest in exergaming was significantly higher than in the fitness unit at the beginning and end of instruction. Children's interest declined significantly in both units and at the same rate. The evidence suggests that exergames may have strong motivational power, but it is premature to claim they will increase physical activity enough for children to receive health benefits in physical education.


The aim of this study was to assess the effects of a 2-year cluster-randomized physical activity and dietary intervention program among 7-year-old (at baseline) elementary school participants on body composition and objectively measured cardio respiratory fitness. Three pairs of schools were selected and matched, then randomly selected as either an intervention (n = 151) or control school (n = 170). None of the effect sizes of body composition were statistically significant. Children in the intervention group increased their fitness by an average of 0.37 z score units more than the controls (95% CI:-0.27 to 1.01, P = 0.18), representing an improvement of 0.286 W/kg. Boys had higher fitness (mean(diff) = 0.35 z scores, 95% CI: 0.13-0.58, P = 0.001) than girls, independent of study group, fitness z score at baseline and body mass index. Post hoc analysis showed that the intervention school with the highest fitness z score change was significantly different from two of the lowest control schools (mean(diff) = 0.83 z scores, 95% CI: 0.44-1.21, P < 0.0001 and mean(diff) = 0.70 z scores, 95% CI: 0.29-1.10, P = 0.01), but it was also significantly different from the lowest intervention school (mean(diff) = 0.59 z scores, 95% CI: 0.19-0.99, P = 0.05). The results of this intervention are inconclusive as regards to the effects on
fitness, but the intervention did not have any statistically significant effect on body composition.


This study investigated the association between sociodemographic and behavioral factors and health standards based on physical fitness component scores in a sample of Brazilian schoolchildren. A sample of 1457 girls and 1392 boys aged 6 to 18 years performed a test battery of 5 items: 1) sit-and-reach, 2) curl-up, 3) trunk-lift, 4) push-up, and 5) progressive endurance run (PACER). The cut-off scores for gender and age suggested by the Fitness Gram were adopted. The findings showed that the sociodemographic and behavioral factors significantly associated with the ability of schoolchildren of meeting the health standards varied according to the fitness test. In the 5 tests used girls presented lower chance of meeting the health standards. Age and socioeconomic class were negatively associated with the performance in all physical tests.


A cross-sectional study was carried out to analyze, through a limited number of fitness tests, the main conditioning and coordinative abilities in children aged 8-9 years, and their relationship with gender, anthropometric variables and physical activity habits. The height and weight of 256 boys and 241 girls were measured and information about physical activity habits was collected using a self-administered questionnaire. Physical performance was assessed by means of a few standardized tests: 'sit & reach', medicine-ball forward throw, standing long jump, 20 m running speed, and forward roll test. In both boys and girls, body weight and Body Mass Index (BMI) were positively correlated with the medicine-ball throw performances and negatively correlated for the standing long jump and speed tests, while no association was found with tests measuring back flexibility and total body coordination. Daily physical activity and participation in sport were not significantly correlated with body weight and BMI, but were positively associated with children's motor performance.
16. Aryana, M Li, ZM Bommer, WJ (2012) studied “Obesity and physical fitness in California school children”

Obesity rates have reached epidemic proportions in the United States and California. Thus, the California Department of Education began a series of steps to address the increase in obesity and decline in fitness in the 6.3 million public school children in California. We evaluated serial changes in obesity and fitness in California school children following implementation of prevention steps in all California public schools. The California Department of Education implemented changes in school nutrition and exercise programs aimed at reducing obesity and improving fitness. Outcome results were monitored by performing Physical Fitness Testing on 8.4 million students (5th, 7th, and 9th grade) for body composition, aerobic capacity, flexibility, and upper body, abdominal, and truncal strength using the Cochran-Armitage trend test and multivariable logistic regression models. Overall fitness improved from 2003 to 2008. Serial changes in body composition, aerobic capacity, flexibility, and upper body, abdominal, and truncal strength improved or remained stable within school as students progressed from 5th to 7th to 9th grade. However, students entering 5th grade were more obese every year, and this early obesity was not reversible within the school programs.

17. Van Dusen, Duncan P.; Kelder, Steven H.; Kohl, Harold W., III; Ranjit, Nalini; Perry, Cheryl L.(2011) conducted a study on “Associations of Physical Fitness and Academic Performance among all fitness variables except body mass index”

(BMI) showed significant, positive associations with academic performance after adjustment for socio-demographic covariates, with standardized mean difference effect sizes ranging from 0.07 to 0.34. Cardiovascular fitness showed the largest interquintile difference in TAKS score (32-75 points), followed by curl-ups. Additional adjustment for BMI and curl-ups showed dose-response associations between cardiovascular fitness and academic scores (p less than 0.001 for both genders and outcomes). Analysis of BMI demonstrated limited, nonlinear association with academic performance after socio-demographic and fitness adjustments. Fitness was strongly and significantly related to academic performance. Cardiovascular fitness showed a dose-response association with academic performance independent
of other socio-demographic and fitness variables. The association appears to peak in late middle to early high school. We recommend that policymakers consider physical education (PE) mandates in middle high school, school administrators consider increasing PE time, and PE practitioners emphasize cardiovascular fitness.

18. Strickland, Eric (2011) conducted a study on “The Benefits of Play Go Well beyond Physical Fitness”

This research demonstrates the positive effects interactive play and exercise have on many aspects of children's well-being, including their cognitive abilities. Play is essential for developing a sense of equality, connectedness, and concern for others. Play builds strong family bonds and encourages open expression of feelings. Free play equally benefits all children, without the team pressures, physical preferences, or singling out that comes with other activities. The mutual play that children engage in is the basic state of friendship that sustains people throughout their lives.


The purpose of this study was to investigate relationships between body mass index (BMI), physical fitness, and academic performance in elementary school students. Specifically, BMI and scores on the President’s Challenge Physical Activity and Fitness Awards Program, a physical fitness test, were compared to reading mathematics scores on the Florida Comprehensive Assessment Test (FCAT), a standardized norm-referenced academic achievement measure. Participants included 132 4th and 5th grade students from a k-12 school located in North Central Florida. Results revealed that BMI and fitness were correlated with academic performance for 5th grade females. In addition, there was a significant and negative association found between BMI and physical fitness across grade level and sex.

20. Thomas, Non E.; Williams, D. R. R.; Rowe, David A.; Davies, Bruce; Baker, Julien S. (2010) conducted a study on “Evidence of Secular Changes in Physical Activity and Fitness, but Not Adiposity and Diet, in Welsh 12-13 Year Olds”
Between the two time periods, mean adiposity levels remained stable. The percentage of school children who were classified as overweight or obese in 2002 was 39.4 per cent (boys) and 26.3 per cent (girls). In 2007, this was 21.3 per cent and 26.0 per cent respectively. Physical activity and fitness levels improved for boys and girls; however, 80.0 per cent of girls still did not meet the recommended one hour per day of moderate physical activity. For both sexes, there were no significant differences in dietary fat intake between 2002 and 2007 cohorts. Both boys and girls continued to consume a diet that was heavily reliant on foods that were high in saturated fat. We identified a trend towards increased physical activity among 12-13 year olds but there were no changes in dietary habits or adiposity. The findings indicate that increased physical activity, used in isolation without dietary modification, has no effect on adiposity. This study has demonstrated a need for large-scale studies to better evaluate existing and future initiatives targeting obesity in young people.


This study establishes the relationship between the compliance with the governmental physical activity guidelines (at least a minimum of one hour of moderate to vigorous physical activity, MVPA, five times a week), health-related physical fitness and different health related lifestyle variables in a representative sample of Spanish children. Subjects were a representative group of scholars from five schools randomly selected in Extremadura, a mainly rural region with a very low population density. Statistical analysis comprises a t-test to calculate physical fitness differences between groups, according to the compliance with the mentioned physical activity guidelines. A multinomial logistic regression coefficient is established to determine the differences between the better physical fitness status group (= percentile 75) and the poorer physical fitness status group (= percentile 25) for each fitness test and gender, body mass index, physical activity, Mediterranean diet index and population size. Main findings show that the compliance with physical activity guidelines result in a better handgrip strength in left hand (p<0.05), leg strength (p<0.000), speed-agility run (p<0.000) and 20 m endurance shuttle run (p<0.000). Being a girl, being overweighted and living in an urban setting are associated with a
lower physical fitness (= percentile 25), whereas there is no relationship between diet quality and subjects' performance in all physical fitness test evaluated.


The purpose was to describe the patterns of commuting to school in young people and to examine its associations with physical activity (PA) and cardiorespiratory fitness. Methods: The sample comprised 2271 Estonian and Swedish children and adolescents (1218 females) aged 9-10 years and 15-16 years. Data were collected in 1998/99. Mode of commuting to and from school was assessed by questionnaire. Time spent (min/day) in PA and average PA (counts/min) was measured by accelerometer. Cardio respiratory fitness was assessed by means of a maximal cycle ergometer test. Sixty-one percent of the participants reported active commuting to school (ACS). Estonian youth showed lower levels of ACS than Swedish (odds ratio, 0.64; 95% confidence interval, 0.53-0.76) and girls reported lower levels than boys (0.74; 0.62-0.88). ACS boys showed higher PA levels than non-ACS boys for moderate, vigorous, MVPA, and average PA levels (all p <= 0.01). Participants who cycled to school had higher cardio respiratory fitness than walkers or passive travelers (p < 0.001). Nearly two-thirds of the participants actively commuted to school. ACS may provide an opportunity to increase levels of daily PA, especially in boys, and cardio respiratory fitness, especially if cycling. Public health strategies should develop and test ACS patterns to get more evidence and promote bike-friendly environments.


To analyze associations between health-related physical fitness and the anthropometric and demographic indicators of children from three elementary schools in Botucatu, SP, Brazil. The sample for this cross-sectional study was composed of 988 students, recruited from the second to ninth grades (an age range of 7 to 15 years). The children underwent anthropometric assessment (weight, height, waist circumference and tricipital and sub scapular skin folds) and were tested for health-related physical fitness (flexibility: sit and reach test; abdominal strength/resistance:
1-minute abdominal test; and aerobic resistance: 9-minute running/walking test). Data were analyzed using descriptive statistics plus Student's t test, the chi-square test or Fisher's exact test and logistic regression with a significance level of 5%. The physical fitness levels observed were significantly influenced by age (all levels), sex (abdominal strength/resistance), obesity (all levels), body adiposity (flexibility, abdominal strength/resistance) and abdominal adiposity (abdominal strength/resistance and aerobic resistance). Females were more prone to be unfit in abdominal strength/resistance. Both obesity and excessive abdominal adiposity predisposed children to be unfit in abdominal strength/resistance and aerobic resistance.


The purpose was to: 1) perform a systematic review of studies examining the relation between physical activity, fitness, and health in school-aged children and youth, and 2) make recommendations based on the findings. The systematic review was limited to 7 health indicators: high blood cholesterol, high blood pressure, the metabolic syndrome, obesity, low bone density, depression, and injuries. Literature searches were conducted using predefined keywords in 6 key databases. A total of 11,088 potential papers were identified. The abstracts and full-text articles of potentially relevant papers were screened to determine eligibility. Data was abstracted for 113 outcomes from the 86 eligible papers. The evidence was graded for each health outcome using established criteria based on the quantity and quality of studies and strength of effect. Physical activity was associated with numerous health benefits. The dose-response relations observed in observational studies indicate that the more physical activity, the greater the health benefit. Results from experimental studies indicate that even modest amounts of physical activity can have health benefits in high-risk youngsters (e. g., obese). To achieve substantive health benefits, the physical activity should be of at least a moderate intensity. Vigorous intensity activities may provide even greater benefit. Aerobic-based activities had the greatest health benefit, other than for bone health, in which case high-impact weight bearing activities were required.

This study analyzed the effect of school practices regarding the provision of physical education (PE) on the physical fitness of children and youth. Using an untapped sample of approximately 5000 5th and 7th graders from 93 schools in Georgia in 2006, individual-level and merged school-level data on physical education were analyzed. Multivariate regression analyses were conducted to estimate the potential influence of the school environment on measured health outcomes. Controls were included for grade, gender, race/ethnicity, urban city, and county of residence. Variables measuring 8 school-level practices pertaining to physical education were found to have significant effects on cardiovascular fitness as measured by the Fitness Gram, with signs in the expected direction. School-level variables pertaining to PE practices were collectively strong predictors of physical fitness, particularly cardiovascular fitness.


Four review articles reported evidence concerning depression, four for anxiety, three for self-esteem and seven for cognitive functioning. Nine primary studies assessed associations between sedentary behaviour and mental health. Physical activity has potentially beneficial effects for reduced depression, but the evidence base is limited. Intervention designs are low in quality, and many reviews include cross-sectional studies. Physical activity interventions have been shown to have a small beneficial effect for reduced anxiety, but the evidence base is limited. Physical activity can lead to improvements in self-esteem, at least in the short term. However, there is a paucity of good quality research. Reviews on physical activity and cognitive functioning have provided evidence that routine physical activity can be associated with improved cognitive performance and academic achievement, but these associations are usually small and inconsistent. Primary studies showed consistent negative associations between mental health and sedentary behaviour. Association between physical activity and mental health in young people is evident, but research designs are often weak and effects are small to moderate. Evidence shows small but consistent associations between sedentary screen time and poorer mental health.

Physical activity is an important determinant of energy balance. However, its impact on overweight/obesity has proved difficult to measure in pre-school children and few Studies have found significant associations. A set of simple questions was used to distinguish pre-school children with high and low physical activity, and the association of this classification with childhood overweight/obesity and performance in an established motor test was investigated. Survey, cross-sectional. Setting and subjects: Weight and height were measured in 12 556 children taking part in the obligatory school entrance health examination 2004-5 and 2005-6 in three urban and three rural Bavarian regions. Their parents were asked to answer a questionnaire with a set of questions on physical activity. Result suggests that physically active children were less likely to be overweight (OR = 0.786, 95% CI 0.687, 0.898) or obese and achieved 6.7 (95% CI 5.8, 7.7) % more jumps per 30 s than less active children in a motor test, adjusted for a number of potentially confounding variables. Classification of pre-school children as physically active or not, based on a small set of questions, revealed significant associations with overweight/obesity and a motor test.


The purpose of this Study was to assess daily physical activity and time spent, on activities of various intensities, and to examine the relationship between daily physical activity and physical fitness in elementary school children. Subjects were 288 elementary school children (140 boys, 148 girls, 9.6 +/- 0.5 years). Daily physical activity was evaluated by accelerometers, worn around the waist for 10 days. Accelerometers calculated steps and vigorous intensity time (LC7-9: higher intensity than brisk walking). A physical fitness test (8 items) was applied to evaluate fitness in pupils. Total accelerometer steps (counts/day) were 18333 +/- 3869 for boys and 13957 +/- 2970 for girls oil weekdays, and 11932 +/- 4827 for boys and 9767 +/- 4542 for girls on weekends respectively. Time spent in LC7-9 (minutes/day) was 31 +/- 12 for boys and 20 +/- 7 for girls on weekdays. Positive associations were found between physical fitness and daily physical activities for man Y items. Above all,
there was a relatively strong correlation between aerobic capacity and LC7-9 time. On the other hand, the correlations were low among girls.


To determine relationships between physical fitness and academic achievement in diverse, urban public school children.

This cross-sectional study used public school data from 2004 to 2005. Academic achievement was assessed as a passing score on Massachusetts Comprehensive Assessment System (MCAS) achievement tests in Mathematics (fourth, sixth, and eighth grade, n = 1103) and in English (fourth and seventh grade, n = 744). Fitness achievement was assessed as the number of physical fitness tests passed during physical education (PE). Multivariate logistic regression analyses were conducted to assess the probability of passing the MCAS tests, controlling for students' weight status (BMI z score), ethnicity, gender, grade, and socioeconomic status. The odds of passing both the MCAS Mathematics test and the MCAS English test increased as the number of fitness tests passed increased (p < .0001 and p < .05, respectively). Results show statistically significant relationships between fitness and academic achievement.


In recent years, the prevalence of overweight and obese children has increased in Iceland, as in most Westernized countries. The main objectives of this study were to assess predictors of fitness and fatness of 9-year-old school children in Iceland. In total, 488 subjects (73.3% participation rate) from 18 randomly selected primary schools participated in this cross-sectional study. Height, weight, sum of four skinfolds and other anthropometric measures were performed on all children. Fitness was assessed via a maximal cycle ergometer test in 229 children and of those, 177 wore Actigraph accelerometers to measure physical activity over five consecutive days. Questionnaires regarding family background and lifestyle were completed by
361 mothers and 332 fathers. The main findings from our study showed fatness, area of living and sex, as well as background variables, such as fathers' smoking and income, and number of sport practices attended per week were important predictors of fitness (best-fit model: R-sq=0.48, p<0.0001). In addition, parental body mass index (BMI), mothers' smoking and physical activity and children's objective measure of physical activity were found to be important predictors of children's fatness (best-fit model: R-sq=0.23, p<0.0001).

31. **Welk, Gregory J. (2008)** conducted a study on “The Role of Physical Activity Assessments for School-Based Physical Activity Promotion”.

The emphasis in public health on lifestyle physical activity in recent years has focused attention on the promotion of lifetime physical activity as the primary objective of physical education. If used properly, physical activity and physical fitness assessments can enhance individual promotion of physical activity and also provide valuable outcome measures to facilitate home and community support for physical education. This article describes the importance of comprehensive evaluation of physical education and emphasizes the importance of including assessments of both physical activity and physical fitness for promoting physical activity. Effective evaluation practices are needed to optimize the effectiveness of physical education programming.

32. **F B Ortega, J R Ruiz M J Castillo and M Sjöström (2008)** conducted a study entitled “Physical fitness in childhood and adolescence: a powerful marker of health”.

This review aims to summarize the latest developments with regard to physical fitness and several health outcomes in young people. The literature reviewed suggests that (1) cardio respiratory fitness levels are associated with total and abdominal adiposity; (2) both cardio respiratory and muscular fitness are shown to be associated with established and emerging cardiovascular disease risk factors; (3) improvements in muscular fitness and speed/agility, rather than cardio respiratory fitness, seem to have a positive effect on skeletal health; (4) both cardio respiratory and muscular fitness enhancements are recommended in pediatric cancer patients/survivors in order to attenuate fatigue and improve their quality of life; and (5) improvements in cardio respiratory fitness have positive effects on depression,
anxiety, mood status and self-esteem, and seem also to be associated with a higher academic performance. In conclusion, health promotion policies and physical activity programs should be designed to improve cardio respiratory fitness, but also two other physical fitness components such as muscular fitness and speed/agility. Schools may play an important role by identifying children with low physical fitness and by promoting positive health behaviors such as encouraging children to be active, with special emphasis on the intensity of the activity.

33. Darla M. Castelli, Charles H. Hillman, Sarah M. Buck, and Heather E. Erwin (2007) conducted a study entitled “Physical Fitness and Academic Achievement in Third- and Fifth- Grade Students”

The relationship between physical fitness and academic achievement has received much attention owing to the increasing prevalence of children who are overweight and unfit, as well as the inescapable pressure on schools to produce students who meet academic standards. This study examined 259 public school students in third and fifth grades and found that fields tests of physical fitness were positively related to academic achievement. Specifically, aerobic capacity was positively associated with achievement, whereas BMI was inversely. Associations were demonstrated in total academic achievement, mathematics achievement, and reading achievement, thus suggesting that aspects of physical fitness may be globally related to academic performance in preadolescents.


This chapter reviews a series of recent studies of physical activity and fitness as they relate to health and longevity, and describes some likely cause and effect associations. It considers three groups of epidemiological studies that deal with physical activity, physical fitness and longevity. They relate mostly to cardiovascular heart disease (CHD) because more work has been done in this area and because CHD in the western world is the foremost cause of premature death. The health and disease status and longevity of premature death of exercisers and non-exercisers, and of the fit and unfit are examined. It is concluded that activity and fitness are key determinants of whole-body, or total health, and help both the individual and the community achieve life goals.

The objective of this study was to examine the association of scholastic performance with physical activity and fitness of children. To do so, school ratings of scholastic ability on a five-point scale for a nationally representative sample of 7,961 Australian schoolchildren aged 7-15 years were compared with physical activity and fitness measurements. Consistently across age and sex groups, the ratings were significantly correlated with questionnaire measures of physical activity and with performance on the 1.6 – kilometer run, sit-ups and push-ups challenges, 50-meter sprint, and standing long jump. There were no significant associations for physical work capacity at a heart rate of 170 (PWC$_{170}$). The results are concordant with the hypothesis that physical activity enhances academic performance and achievement.

36. MI Goran, KD Reynolds and CH Lindquist (2000) studied “Role of physical activity in the prevention of obesity in children”

The increasing prevalence of childhood obesity and its concomitant health risks justify widespread efforts toward prevention. Although both diet and physical activity have been emphasized as appropriate interventions, the current paper focuses on the role of physical activity in obesity prevention. Children’s levels of physical activity are highly variable, and may be influenced by a multitude of factors including physiological, psychological, socio-cultural and environmental determinants. Although the relationship between physical activity and obesity is controversial and the protective mechanism unclear, physical activity is hypothesized to protect individuals from the development of obesity by increasing energy expenditure and resting metabolic rate (RMR) and leading to a favorable fuel utilization. The beneficial effect of physical activity in children is supported by controlled exercise intervention programs. Several broad-based public health interventions designed to increase children’s levels of physical activity have been implemented in schools, families and communities, with results suggesting promising strategies for the prevention of childhood obesity.
III. STUDIES RELATED TO MENTAL HEALTH

1. Al-Obaidi, AK Nelson, BD Al Badawi, G Hicks, MHR Guarino, AJ (2013)
   Studied “Child mental health and service needs in Iraq: beliefs and attitudes of primary school teachers”

   To survey Iraqi primary school teachers' beliefs and attitudes about mental health and behavioural problems of children. From 10 primary schools in Baghdad, 148 teachers were surveyed using a closed-response questionnaire to assess beliefs and attitudes regarding students' mental health and behavioral problems, needs, resources and limitations to teaching. Disruptive behaviours were rated as main problems by the largest proportions of teachers. In-service training on 'identifying students with social, emotional, or behavioural problems' and 'effective behaviour management' was rated very important by 70% of teachers. Most teachers received no training on mental health during their teaching career. There was low reported availability of a wide range of school-based mental health resources.


   Early detection of child mental health problems in schools is critical for implementing strategies for prevention and intervention. The development of an effective measure of mental health and well-being for this context must be both empirically sound and practically feasible. This study reports the initial validation of a brief self-report measure for child mental health suitable for use with children as young as 8 years old. After factor analysis, and studies of measurement invariance, 2 subscales emerged: emotional difficulties and behavioral difficulties. These 2 subscales were highly correlated with corresponding constructs of the Strengths and Difficulties Questionnaire (SDQ) and showed correlations with attainment, deprivation, and educational needs similar to ones obtained between these demographic measures and the SDQ. Results suggest that this school-based self-report measure is psychometrically sound, and has the potential of contributing to school mental health surveys, evaluation of interventions, and recognition of mental health problems within schools.
3. **Houri, D Nam, EW Choe, EH Min, LZ Matsumoto, K (2012)** Studied “The mental health of adolescent school children: a comparison among Japan, Korea, and China”

This study compared the mental health of adolescents in three countries in northeast Asia: Japan, South Korea, and China. The study sample included a total of 1,399 third graders at junior high schools: 632 from Yonago City and Tottori City in Japan, 377 from Wonju City in Korea, and 390 from Changchun City in China. Mental health was measured by the Ochanomizu University Health Examination, which includes mental health scales composed of somatic symptoms, eating disorders, depression, interpersonal relationships, powerlessness, and impulsiveness; self-resilience; familial relationships; friendships; a feeling of gloom during the previous month; current well-being; and counseling. The results of this study were as follows: first, Japanese students experienced more difficulties in interpersonal relationships and experienced more feelings of powerlessness than Korean and Chinese students. Korean students were vulnerable to somatic symptoms and impulsiveness, whereas Chinese students experienced more depression than Korean and Japanese students. Second, more female students were in the poor mental health group than male students. Third, Japanese female students ranked the lowest of all groups for the Resilience Index scores. Fourth, when in need of counseling, students solicited advice from teachers (classroom teachers, health teachers or club teachers) about their study-related problems, and asked for advice from friends regarding problems or worries about peer and family relations.


Many prominent theorists have argued that accurate perceptions of the self, the world, and the future are essential for mental health. Yet considerable research evidence suggests that overly positive self-evaluations, exaggerated perceptions of control or mastery, and unrealistic optimism are characteristic of normal human thought. Moreover, these illusions appear to promote other criteria of mental health, including the ability to care about others, the ability to be happy or contented, and the ability to engage in productive and creative work. These strategies may succeed, in large part, because both the social world and cognitive-processing mechanisms
impose filters on incoming information that distort it in a positive direction; negative
information may be isolated and represented in as unthreatening a manner as possible.
These positive illusions may be especially useful when an individual receives
negative feedback or is otherwise threatened and may be especially adaptive under
these circumstances.

5. Beyer, T Postert, C Muller, JM Furniss, T (2012) Studied “Prognosis and
Continuity of Child Mental Health Problems from Preschool to Primary School:
Results of a Four-Year Longitudinal Study”

In a four-year longitudinal study, changes in and continuity of behavioral and
emotional problems were examined in 814 subjects from kindergarten to primary
school. Mental health problems were assessed by means of the Child Behavior
Checklist (CBCL). The distribution of the CBCL broadband groups revealed a high
level of continuity of internalizing symptoms over the four-year period and a shift
from externalizing symptoms at baseline towards a combination of internalizing and
externalizing symptoms at follow-up. The presence of mental health problems at
follow-up was correlated with gender (higher amongst boys), pre-existing mental
health problems at baseline, and separation or divorce of the parents, but not with
single-family status or the age and educational level of the mother. The increasing
number of children with a combination of internalizing and externalizing symptoms
demonstrates the increasing complexity of child mental health problems in the
developmental span from preschool age to school age.

6. Reinke, WM Stormont, M Herman, KC Puri, R Goel, N (2011) Studied
“Supporting Children's Mental Health in Schools: Teacher Perceptions of Needs,
Roles, and Barriers”

There is a significant research to practice gap in the area of mental health practices
and interventions in schools. Understanding the teacher perspective can provide
important information about contextual influences that can be used to bridge the
research to practice gap in school-based mental health practices. The purpose of this
study was to examine teachers' perceptions of current mental health needs in their
schools; their knowledge, skills, training experiences and training needs; their roles
for supporting children's mental health; and barriers to supporting mental health needs
in their school settings. Participants included 292 teachers from 5 school districts.
Teachers reported viewing school psychologists as having a primary role in most aspects of mental health service delivery in the school including conducting screening and behavioral assessments, monitoring student progress, and referring children to school-based or community services. Teachers perceived themselves as having primary responsibility for implementing classroom-based behavioral interventions but believed school psychologists had a greater role in teaching social emotional lessons.


The present study used a sample of 241 children aged 4 to 10 years at five Brazilian schools in Japan. The Strength and Difficulties Questionnaire was applied for their guardians and teachers to detect the probable cases of mental disorders. Demographic data of the children were also collected from their guardians and a further analysis was made to determine the risk factors of the probable cases of conduct disorders. The proportion of probable cases was 0.8% for emotional disorders, 9.1% for conduct disorders, 2.1% for hyperactivity disorders, and 10.0% for any psychiatric disorder. The detected risk factors of conduct disorders were male sex, 8 to 10 years of age, living without a father, and not talking often with their teacher. Considering the school and home situation of the children, living without a father seemed to be the foremost risk factor of conduct disorders.

8. Tyson, O Roberts, CM Kane, R (2009) Studied “Can Implementation of a Resilience Program for Primary School Children Enhance the Mental Health of Teachers?”

This study investigated whether a mental health promotion program delivered by primary school teachers to prevent internalizing problems in children had any impact on the teachers' job-related affective wellbeing. Teacher job-related anxiety and job-related depression were measured before teaching the Aussie Optimism program, and after implementation at 12 and 24 months. Schools and teachers were randomized to one of three groups: Aussie Optimism with Teacher Training; Aussie Optimism with Teacher Training and Coaching; or the Usual Care control group, which implemented the regular Western Australian Health Education Curriculum. In all three groups, teachers taught lessons to promote student self-management and interpersonal skills.
during the last two years of primary school. Teachers in schools in the control group received training in Aussie Optimism after the first year of intervention. Data was collected from 405 primary school teachers in 63 government primary schools. Multiple hierarchical regression analyses showed partial support for the hypotheses, with teachers in the Training and Coaching intervention group reporting significantly lower levels of job-related anxiety at the 12-month assessment and depression at both the 12- and 24-month assessments when compared to teachers in the Usual Care control group. There were no significant differences between teachers in the Training only group and the control group after intervention.


The study examined the association between life events and early child mental health prior to school entry. The impact of single life events and the cumulative effect of multiple life events on child mental health were examined. In a northern German city, the complete 1-year intake of preschool children at the primary school entry assessment was included. In 1,887 children, life events and psychiatric symptoms were recorded by means of standardized parent questionnaires. Included were all life events between child's birth and school entry. For more than 80 percent of all children, at least one life event was reported. The number of life events was independent of any demographic variable; the mean was 2.2. The number of life events had a highly significant effect on the prevalence of child mental health problems. Six family-change-factors, especially coherent in content, could be identified by factor analysis. The study provides important data on the epidemiology and clinical impact of life events and psychopathology in early childhood. For child mental health, the cumulative effect of multiple life events was found to be much more important than the effect of specific single life events.


To estimate the prevalence of peer victimization among primary school-aged children, to identify mental health and social correlates, and to assess health care services use. One hundred schools and 25 children (6-11 years old) per school were
randomly selected in a large French region. Data were collected using standardized self-administered questionnaires to parents (Strengths and Difficulties Questionnaire) and children (Dominic Interactive). Three drawings depicting situations of victimization were added to the 91 standard questions of the Dominic interactive. The categories of victimization considered were as follows: bullied, assaulted not scared, and scared not assaulted (categories mutually exclusive). Results: Complete data were available for 1,274 children (54.4%). The prevalence of bullied children, assaulted not scared, and scared not assaulted was 21.0%, 19.6%, and 19.7%, respectively. Bullied children were characterized by their vulnerability: young age (6-8 yr) and chronic illness. The main correlates were self-reported symptoms of anxiety, major depressive disorder, and parent-reported peer relationship difficulties. Victimization was not associated with higher access to mental health services (odds ratio = 1.0; 95% confidence interval = 0.5-2.1). Except for children who suffered chronic illness, access to physicians was less frequent for bullied children (odds ratio = 0.3; 95% confidence interval = 0.2-0.7). Conclusion: Peer victimization was frequent in schools, even in primary schools. Our findings highlight the need for public health interventions in schools and the role of physicians in detecting children at risk.


This study investigated the association between food insecurity and Taiwanese children's ambulatory medical care use for treating eighteen disease types linked to endocrine and metabolic disorders, nutrition, immunity, infections, asthma, mental health, injury, and poisoning. We used longitudinal data in the Taiwan National Health Insurance scheme (NHI) for 764,526 elementary children, and employed approximate NHI data to construct three indicators imputed to food insecurity: low birth weight status, economic status (poverty versus non-poverty), and time of year (summer break time versus semester time). We compared ambulatory Care for these diseases between children with low birth weight and those not, and between children living in poverty and those not. A difference-in-differences method was adopted to examine the potential for a publicly-funded lunch program to reduce the harmful health effects of food insecurity on poor children. We found that children in poverty were significantly more likely to have ambulatory visits linked with diabetes,
inherited disorders of metabolism, iron deficiency anemia, ill-defined symptoms concerning nutrition, metabolism and development, as well as mental disorders. Children with low birth weight also had a significantly higher likelihood of using care for other endocrine disorders and nutritional deficiencies, in addition to the above diseases. The study failed to find any significant effect of the semester school lunch program on alleviating the harmful health effects of food insecurity for poor children, suggesting that a more intensive food program or other program approaches might be required to help poor children overcome food insecurity and its related health outcomes.


Studied “Enhancing schools' capacity to support children in poverty: An ecological model of school-based mental health services”

School based mental health services for children in poverty can capitalize on schools' inherent capacity to support development and bridge home and neighborhood ecologies. We propose an ecological model informed by public health and organizational theories to refocus school based services in poor communities on the core function of schools to promote learning. We describe how coalescing mental health resources around school goals includes a focus on universal programming, mobilizing indigenous school and community resources, and supporting core teaching technologies. We suggest an interactive research-practice approach to program adaptation and implementation as a means toward advancing science and developing healthy children.


conducted a study on “Predicting nonresponse bias from teacher ratings of mental health problems in primary school children”

The impact of nonresponse on estimates of mental health problems was examined in a prospective teacher screen in a community survey of 9,155 7-9 year olds. For 6,611 of the children, parents consented to participation in the actual study (Responders), while for 2,544 children parental consent was not obtained (Non-responders). The teacher screen involved assessment of a broad set of symptoms of mental health problems and functional impairment. Calculations of non-response
coefficients, a function of effect sizes and non-response proportion, revealed only
ignorable nonresponse bias for both mean scores and correlations. However, the
results from binary logistic regressions revealed that children ascribed signs of mental
health problems by their teachers were less likely to participate. This was most
frequent among children with only moderate symptoms. However, it also involved
children with high symptom scores related to inattention, hyperactivity, emotions and
peer relationship problems. These findings suggest that measures based on effect size
can underestimate the magnitude of non-response bias and that a logistic regression
approach may be more appropriate for studies geared at estimating prevalence of
mental health problems in children.

14. Liu, CY Munakata, T Onuoha, FN(2005) Studied “Mental health condition of
the only-child: A study of urban and rural high school students in China”

The mental health of the only-child continues to generate interest in research
literature. The present study examines the issue in China, where the one-child
phenomenon is highest due to deliberate government policy. Subjects are 299 and 333
students in two high-rank high schools in urban Harebin and rural Qing an Man,
respectively (mean age = 17.2 years). Both locations are in the Heilongjiang Sheng
Province of China. Results showed that urban only-children experienced significantly
lower love awareness from family, higher neurotic and social depression, trait anxiety,
perceived stressors, and interpersonal dependency than did urban non-only children.
No significant differences were found in the rural only- and non-only children. Low
love awareness from parents and peers was associated with high negative mental
health conditions in the children. Low love awareness also precipitated perceived
stressors which resulted in negative mental health in the covariance structure analysis.

ratings of mental health among school children in Kinshasa, Democratic
Republic of Congo”

This study piloted the Strengths and Difficulties Questionnaire (SDQ) in
Kinshasa, investigated mental health problems and the association between these
problems and school performance, demographic factors, illness and nutrition. An
epidemiological survey was conducted with 1, 187 children, 7-9 years old, recruited
from randomly selected schools. Mental health problems were assessed with the SDQ
(a behavioural screening tool) administered to teachers. Stability of the factor structure was examined using principal component factor analysis of the SDQ items. The reliability was evaluated using measures of internal consistency of the SDQ scales. Results Factor analysis yielded five factors, similar to the published SDQ scales. The internal consistency was satisfactory on all of the SDQ scales. Using the 90(th) percentile, the cut-off scores were somewhat higher than the published cut-off scores in this younger sample. Poor nutrition, low socioeconomic status and illness were found to increase the risk for mental health problems and low school performance.


Conducted a study entitled “Different measures, different informants, same outcomes? Investigating multiple perspectives of primary school students’ mental health”

This paper investigates teacher and parent/caregiver assessments of students’ mental health based upon data from the evaluation of the KidsMatter mental health promotion, prevention and early intervention pilot Initiative in 100 primary schools across Australia. Goodman’s (2005) Strength and Difficulties Questionnaire (SDQ) was completed by parents/caregivers and teachers of almost 4900 primary school students in KidsMatter schools. The SDQ was developed as a brief mental health screening instrument and is widely used in many nations, including Australia (Levitt, Saka et al 2007). A second measure, the Flinders Student Competencies Scale (SCS), which was specifically developed for this study, canvassed the five core groups of indicators of students’ social and emotional competencies identified by the Collaborative for Academic, Social awareness, relationship skills, and responsible decision making, as well as students’ optimism and problem solving capabilities. A third measure was based on a non-clinical assessment by teachers and school leadership staff, who identified students in their school who were considered to be ‘at risk’ of social emotional or behavioural problems. Results indicate that significant associations were found between the three measures of students’ mental health.

To examine the use of mental health services and correlates of receiving services among community-dwelling children with disabilities, ages 6 to 17 years. Data are from the 1994 and 1995 National Health Interview Survey Disability Supplements (NHIS-D), conducted by the National Center for Health Statistics. The study sample is 4,939 children with disabilities, representing an estimated eight million children with disabilities nationwide. Multivariate logistic regression analysis showed service use was associated with poor psychosocial adjustment; communication, social, and learning-related functional impairments; public health insurance; and financial family burdens. Moreover, children with disabilities were more likely to use outpatient mental health services if their care was jointly coordinated by a family member and a health professional, compared to a health professional working alone. In contrast to inpatient and outpatient care, race and family burden were not associated with the likelihood of mental health counseling in special education school settings. Findings indicate that only two in five disabled children with poor psychosocial adjustment receive mental health services. The study also shows that the involvement of health professionals in care coordination is associated with greater access to mental health care for disabled children. These findings underscore the importance of engaging both health care professionals and the family in the care process.


In this text, we present the results of two comparative studies: the first compares two groups of pupils from the Preparatory Class (average age 6) of a school situated in a ZEP (Priority Education Zone) in the region of Provence, Alpes, Cote d'Azur. The 24 subjects were chosen according to their adaptation to school and their success or not in learning, in particular to read. In a second study, carried out in Corsica, we took as a basis for comparison two groups of 20 children according to whether or not they belonged to a school situated in a ZEP. In the two studies, we took into account the individual variables of the child: mental health and the locus of control as well as
self-esteem, variables we consider to be closely related to social and school integration. Mental health is assessed by the paper version of the "Dominique ", a questionnaire elaborated by Dr Valla in Quebec (Valla al., 1994; 1997).


This article describes a collaborative research model for school-based mental health services that targets children who are recent immigrants with violence-related mental health symptoms. The model describes a conceptual framework used in the establishment of an academic-community partnership during the development, evaluation, and implementation of the Mental Health for Immigrants Program (MHIP), a school-based mental health intervention. The article discusses the challenges that occurred and provides specific examples of how a participatory research partnership may work together through all program phases-design through implementation and program evaluation - to meet a specific community's needs and produce generalizable knowledge. The challenges and limitations of collaborative research approaches also are discussed, with particular emphasis on the role of participatory research in the development and evaluation of school-based mental health programs.

20. Della, Marie; Gaier, Eugene L.(2002) conducted a study on “Classroom climate and the mental health of primary school children”

This study was carried out to examine associations between classroom climate and pupils' mental health in primary school, and whether pupils who had emotional and behavioural problems in the second grade are more vulnerable to the effects of a poor classroom climate 4 years later. The study was carried out by means of questionnaires to teachers. The students ( n = 861) were surveyed in the second (aged 8 years, Time 1) and sixth grade (aged 12 years, Time 2). The Rutter Teacher Questionnaire (RB2) at Time 1 and the Teacher Report Form (TRF) at Time 2 were used to measure internalizing, externalizing and total problem scores. Classroom climate was measured using a composite variable at Time 2. The results show associations between poor sixth-grade classroom climate and an increase in emotional and
behavioural problems in both boys and girls. In addition, the girls who were overall poorly adjusted, particularly those who had externalizing problems in the second grade, were especially vulnerable to a poor classroom climate in the sixth grade.


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School adjustment profiles of demographically matched English-as-a-second-language (ESL), and non-ESL, children, both groups largely Hispanic, referred for school mental health services were compared. Comparisons were based on total, factor, and item scores from two measures of school adjustment, the Teacher-Child Rating Scale (T-CRS) and Child Rating Scale (CRS). Teachers judged ESLs to have fewer acting-out, and more shy/anxious and learning problems than non-ESLs. English-as-a-second-language students were also judged to have fewer competencies than non-ESLs overall, and in the specific areas of assertive social skills and peer-social skills, but to have greater frustration tolerance. Separate factor analyses of the T-CRS with referred ESL and non-ESL children confirmed the factor structure previously obtained with non-referred, English-speaking children. Factor analysis of
the CRS, however yielded an expanded (9-item) anxiety factor for ESL children that included three prior peer-sociability items.

IV. STUDIES RELATED TO CREATIVITY AND PHYSICAL FITNESS


This article presents a follow-up study regarding whether motor creativity, developed in 3rd-grade children nine 9 years ago with the implementation of a special physical education program, has been retained. It was found that the experimental group continued to show statistically significant superiority in motor creativity. These follow-up findings can be considered far more important than the original ones, because they reveal that if motor creativity is developed in a child, it remains active for a long time, potentially the rest of his or her life, with all the subsequent advantages.


This study investigated the effects of a pretend play intervention on 45 first and second grade children 2-8 months post-intervention. It was hypothesized that pretend play would be improved in the intervention groups and that they would score higher than controls on measures of play, creativity, and emotional processes. Subjects were randomly assigned to an effect, imagination, or control group. The imagination group significantly increased on multiple play scores from baseline to follow up and compared with controls, scores on frequency of positive affect expression were significantly higher. Differences on other scores were not found.

Results indicate that play skills can be improved and cognitive play skills may have a stronger impact on affective processes than anticipated.


The potential effects of aerobic exercise on creative potential were explored both immediately following moderate aerobic exercise and after a two hour lag. Sixty
college students participated in an experiment consisting of three regimens varying the time when a Torrance Test of Creative Thinking was taken in relation to exercise completion. The results supported the hypotheses that creative potential will be greater upon completion of moderate aerobic exercise than when not preceded by exercise (immediate effects), that creative potential will be greater following a two hour lag time following exercise than when not preceded by exercise (residual effects), and that creative potential will not be significantly different immediately following exercise than after a two hour lag time following exercise (enduring residual effects). Limitations and implications for future research were discussed.

V. STUDIES RELATED TO CREATIVITY MENTAL HEALTH

1. Barron, Frank (2014) conducted on a “Creativity and psychological health”

Summarizes 10 years of research into the question of how we can recognize and foster the spark of creativity in ourselves and others. The research, involving more than 5000 men and women, explored such topics as: personal change and growth through psychotherapy; religious beliefs and philosophy of life as bases for action; the paradox of freedom and necessity; transcendental experience; and personal creativeness. The publication discusses the relationship of artistic creation and religious belief to self-renewal and examines the role of conflict in creative change.

2. Kumar, Aditya (2012) conducted a study on “Creativity and mental health”

Discusses the desirability of investigating the relationship between an individual's creative productivity and his/her personality profile, as measured by standardized tests. Relatively little attention has been given to the personality organization and dispositions of creative persons in general, and the intellectual and creative potentials of mental patients in particular. Findings on creative individuals from clinical and applied research would reveal the presence of certain external and internal conditions that apparently facilitated the discovery and development of their creative potentials. Some of these conditions, also frequently present in the life of a mental patient, are brief described, including body feelings and perceptions, object loss and grief, and ego regression.
3. **Khosravani S., Gilani B (2007)** conducted a study on “Creativity and Mental Health”

The results showed a significant relationship between creativity and different aspects of mental health, namely anxiety, depression, self-esteem and perceived stress. More specifically, creative subjects were less anxious and less depressed; they experienced less stress and had a higher self-esteem. Moreover, regression analysis indicated that only the originality factor of creativity predicated the depression and perceived stress scores. The results of ANOVA on creativity scores of subjects from different faculties indicated that the subjects from the faculty of Fine Arts were significantly more.

### 2.06 CRITICAL REVIEW

There were 46 Indian and 103 foreign studies have been reviewed. The careful examination of the related literature provides supportive evidence to the present research problem as there are many number of studies done related to the present study. From the literature review, it is revealed that varying methods like survey, experimentation, questionnaire and observation had been used in the pertinent studies. While going through the review it was noticed that there are only few Indian studies in the variables selected, when compared to the studies conducted aboard. This dearth of Indian studies on physical fitness, creativity related to mental health also recommends the necessity of these studies like the current research. The review of related literature has contributed to the current study to gain an understanding about the study variables to be selected about how to devise the design of the study and how the relationship between the variables can be hypothesized.