# Development Of The Questionnaire For Assessment Of Reading And Writing Motivation Of Boys And Girls Of Grades III And IV.

PROJECT REPORT

1999-2003

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## ABSTRACT

Development of questionnaire for assessment of Reading and Writing motivation is important for psychological counseling and guidance. This project has five fold objectives- (a) to identify dimensions of reading and writing motivation of the children in grades III and IV; (b) to develop questionnaire for assessment of Reading and Writing motivation of children in grades III and IV; (c) to relate Reading and Writing motivation with academic achievement; (d) to determine the significant main and interaction effect of school types (Government, Government aided, Corporation and Missionary) and genders (boys and girls) on Reading and Writing motivation; (e) to determine correspondence between types of school and extent of Reading and Writing motivation.

On the basis of cognitive - behavioral model of motivation, prior studies conceptualized reading and writing motivation variables resulting gap of knowledge about actual preferences of reading and writing motivation variables by the students in primary education. This project attempted to explore reading and writing motivation variables through interviewing the students and teachers. Content analysis of the interview responses and literature survey helped in exploring seven reading (achievement, application, knowledge, aesthetic, affiliation, recognition and harm avoidance) and seven writing motivation (documentation, emotional expression, creativity, affiliation, achievement , recognition and harm avoidance) variables. Following principles of paired comparison technique, two questionnaires were developed with 42 items for 21 events in each in order to determine relative preferences of reading and writing motivation variables. Psychometric properties of the questionnaire were estimated to determine extent of test-retest reliability, face, content and predictive validity coefficients. Step wise multiple regression analysis noted that both reading and writing motivation variables differentially predicted examination scores in first, second languages and arithmetic. In studying relative preference of reading and writing motivation variables across different types of schools and genders, MANOVA noted differential preferences to reading and writing motivation variables by the boys and girls of different schools.

## INTRODUCTION : SETTING OBJECTIVES

The term 'Motivation' refers to the internal processes that give behavior its energy and directions. It originates from a variety of sources (needs, cognitions and emotions) and these internal processes energize behavior in multiple ways such as starting, sustaining, intensifying, focusing, and stopping it (Reeve, 1996). Motivation is claimed to be the product of interdependence between and amongst many variables (Weiner, 1990), such as locus of control (Duke and Nowicki, 1974), the need for affiliation, impulsiveness and planfulness (Friis and Knox, 1972), personal achievement, social achievement, academic achievement (Maehr, 1984; Piedmont, 1989), mastery, work orientation, competitiveness and personal concern (Donohue and Wong, 1997; Helmreich and Spence, 1978).

Motivation has been studied from different perspectives in different disciplines of psychology. To understand academic motivation of students especially in primary schools, reading and writing motivation are assumed to be important variables for research. Reading and writing motivation are the processes to put more effort on reading and writing activities. This is framed with one's appraisal of relationship between reading or writing motives and the reading or writing outcomes. Waugh (2002) identified ten models of motivation in the literature, each emphasizing different aspects, some of which are interrelated. The ten models can be summarized under the following headings. One is the arousal and anxiety model (Covington and Omelich, 1987; Naveh-Benjamin, 1991; Tobias, 1985), Two is a needs model (Darley, Glucksberg, and Kinchla, 1988; Maslow, 1970). Three is an achievement and social goal model (Bandura, 1986; Maehr,1984; McClelland, 1985; Wentzel,1991). Four is a behavioural moitvation model involving rewards, reinforcement and intrinsic motivation (Boggiano & Barrett, 1992; Butler,1988; Cameron and Pierce, 1994; Heckhausen, 1991; Lepper and Hodell, 1989). Five is attribution theory (Maehr, 1989; Weiner, 1985). Six is a self-regulated learning model (Corno, 1992; Reeve,1996;Schunk,1991; Wolters, 1998; Zimmerman, 1990; Zimmerman and Schunk, 1989). Nine is perceived self-efficacy model that relates personal beliefs to actions to achieve (Bandura, 1982; Schunk, 1989). Ten is a personal investment model involving tasks, ego, social solidarity and extrinsic rewards (Maehr, 1984; Maehr and Braskamp, 1986

) . Of the above ten models, prior studies paid attention to self-efficacy and achievement and social goal models in conceptualizing variables for assessment of reading motivation. Based on Bandura's self-efficacy theory, Baker , Afflerbach and Reinking (1996); Guthrie ,Mcgough , and Rice ( 1996) ; Oldfather and Wigfield (1996) demonstrated some determinants of reading motivation – sense of self-efficacy and task values. Schunk (1991) and Schunk and Zimmerman (1997) demonstrated that children's sense of efficacy (children's evaluation of their competence in reading ) relates to their academic performance . If individuals believe that they are competent and efficacious in reading they may not engage in it if they have no task values. Eccles et . al . (1983) identified three task values , interest value (how much the individual likes the activity); attainment value (the importance of activity) and utility value (the usefulness of an activity). A construct related to the interest value component is intrinsic motivation. Intrinsic motivation refers to choosing to do and then doing an activity for its own sake , rather than for "extrinsic " reasons such as receiving recognition (Dici and Ryan , 1985) . Based on above theories, Wigfield and Guthrie (1995 , 1997) identified few variables for assessment of reading motivation. They are (i) reading curiosity (the desire to learn about a particular topic of interest to the child ) , (ii)reading challenge (the satisfaction of mastering or assimilating complex ideas in text) ; (iii)reading importance (subjective task values as reported by Eccles et . al. 1983; Wigfield and Eccles 1992 , in their work) ,(iv) reading involvement (the enjoyment of experiencing different kinds of literary and informational text)(v) competition in reading (the desire to outperform others in reading) , (vi) recognition for reading (the gratification in receiving a tangible form of recognition for success in reading) and (vii)reading for grades (the desire to be evaluated favorably by the teacher).

Like Reading motivation, Following Bandura's model of self-efficacy, Pajares, and Valiante (1999, 2000, 2001) conceptualized five characteristics of writing motivation - writing self-efficacy, writing self-concept, self-efficacy for self-regulation, value of writing, and task goals. Since earlier study paid attention to the cognitive behaviouristic model of personality in conceptualizing writing motivation, it failed to unearth some of the important variables (motivation to read for application or motivation to write for emotional expression etc.). Therefore first objective of this study was :

**Objective 1: To identify dimensions of reading and writing motivation of the children in grades III and IV**

Questionnaire development is one of the useful methods to validate the explored variables. It helps in understanding extent of individual differences in different reading and writing motivation variables. A good questionnaire possesses high reliability in terms of internal consistency and validity in terms of item validity and predictive validity. There are some other purposes for development of questionnaire like (a) determining relative importance of reading and writing motives (b) predicting criterion variable like academic achievement (c) determining teaching strategy and (d) profile matching.

(a) Determining relative importance : According to the humanistic psychologist Abraham Maslow (1954, 1970), each individual possesses a hierarchy of needs. This hierarchy affects individual's behavior. Following Maslow's assumption, it can be conjectured that reading or writing behavior of students is affected by his hierarchy of reading and writing motives. Questionnaire is an useful instrument to assess one's hierarchy of reading and writing motives.

(b) Predicting criterion variable : Prediction to criterion variable is important for educational counseling and guidance. Development of questionnaire for assessment of reading and writing motives is important for prediction to several criterion variables like academic achievement, reading or writing involvement . Wigfield and Guthrie (1997) studied relationship between reading motives and reading involvement using reading motivation questionnaire.

(c ) Determining teaching strategy : Teaching strategy depends upon one’s motivation to study. Information related to extent of relative importance of different reading and writing motives may provide insight to the teachers about development of different teaching strategies.

(d) Profile matching : Profile matching is useful for classification of pupils based on individual traits. Tools for assessment of reading and writing motives provide some quantitative information in determining individual to individual or individual to group or group to group profile similarity.

Hence, the second and third objectives were :

**Objective 2: To develop questionnaires for assessment of reading and writing motivation of boys and girls in grades III and IV Development includes selection of items and assessing the reliability and validity of the instruments**.

**Objective 3: To relate Reading and Writing motivation with academic achievement.**

Gender differences in academic motivation were evident in prior studies. Wigfield, Eccles and Pintrich (1966) reported gender differences in academic motivation indexes and in academic self-beliefs. Pajares and Valiante (2001) found that girls reported stronger writing self-efficacy, writing self-concept, self-efficacy for self-regulation, value of writing, and task goals, and they received higher grades in language arts. Boys reported stronger performance-approach goals. Like gender, grades may have some effect on academic motivation. With the change in grades, students develop different meaning about the purposes of education. Besides individual variable, organizational variables like school types, might play important role in variation of reading and writing motivation of students in primary schools due to introduction of different incentive strategies used for development of motivation to read and write. Therefore third and fourth objectives of this study was :

**Objective 4: To determine significant main and interaction effect of school types (Government, Government aided, Corporation and Missionary) and genders (boys and girls) on Reading and Writing motivation**.

**Objective 5: To determine correspondence between types of school and extent of Reading and Writing motivation.**

## LITERATURE SURVEY: PERSPECTIVES OF STUDY

Since this study focused attention to determine reading and writing motivation of children in primary education , literature survey centered around three areas (a) History of primary education (b) Philosophy of primary education (c) Psychological perspectives of academic motivation (d) Psychological perspectives of reading and writing motivation (d) Studies of academic motivation in other disciplines

### History of primary education

Primary education is the most significant indicator of a country's literacy (ability to read and write a simple statement on his or her everyday life, (UNESCO, 1993)). It raises the productivity and earning potential of a population and improves the quality of lives (Psacharopoulos, 1993; World bank, 1993; Barro, 1991). In the directive principles of state policy of the constitution of India (article 45, page 3) it is clearly written that "The State shall endeavor to provide within a period of ten years from the commencement of this constitution for free and compulsory education for all children until they complete the age of fourteen years." Kaur(1985) highlighted different policies, planning and implementation of primary education before and after the Independence. The development of the modern system of primary education may be said to have begun in 1813 with the chartered act of 1813 under which the British parliament directed the East India company to accept responsibility for the education of the Indian people and to spend a sum of not less than a lakh of rupees a year for this purpose. But even this meagre amount was not fully utilized for the next ten years. In 1822, Thomas Munro ordered a survey for the purpose of primary education. In 1835 English language was declared the medium of instruction and the indigenous education of the country started to decline. One major break through occur during Lord Curzon's period. The Government of India Resolution of 1904 incorporated his liberal ideas about primary education. Curzon alloted rupees 35 lakhs for the quantitative as well as qualitative improvement of primary education. It included reforms in curriculum, training of primary teachers, new system of granting aids and encouraging expansion of primary education by recurring and non recurring grants. Some improvements like school buildings, equipment, instruction and text books did improved. But taking into consideration

the magnitude of the task of educating the entire population, the improvement was not appreciable. Gopal Krishan Gokhale in 1910 boldly attempted to press for legislation for compulsory primary education. In 1911, the under secretary of state for India admitted the need for paying greater attention to Indian education. As a result, the official machinary of education begun to work at faster. In 1913, resolution was passed by Government for the widest possible extension of primary education on voluntary basis. Provincial Governments were given the authority to make primary education free for the backward and the poor. In 1918, the Bombay Government passed the primary education act, moved by Vithalbhai Patel. It authorized the municipalities to start compulsory primary education for boys of ages between six and eleven years. It was the first legislation to accept the principle of compulsory primary education. Other provincial Governments promulgated similar measures and by 1919, the Governments of the Punjub, Uttar Pradesh, Bengal, Bihar and Orissa brought into force the primary education acts. In 1921, the control of elementary education was transferred to Indian ministers, and the goal of compulsory education was accepted. The Hartog committee, 1929 made a deep study of primary education and came to the conclusion that its progress had not been satisfactory. Following its recommendation inefficient schools were rooted out and only the efficient ones were allowed to exist. Regarding primary education the Abbot and Wood's committee report,1937 recommend that "the education of children in primary school should be based more upon the natural interests and activities of young children and less upon book learning." Unfortunately the recommendations of this committee could not be implemented because of the out break of the second World war two years later. The Zakir Hussain Committee report 1937 also called the Wardha scheme examined the curriculum for primary schools in depth and, keeping in view the socio economic forces acting on the educational system, recommended the introduction of (a) basic craft (b) mother tongue (c) mathematics (d) social studies (e) general science (Nature study, botany, Zoology, Physiology, Hygiene, Physical culture Chemistry, Knowledge of Stars) (f) drawing (g) music (h) Hindustani in the curricula for primary schools. The committee attempted to draft an activity curriculum which implied that schools must be places of work, experimentation and discovery, not of a passive absorption of information imparted. In 1937 Mahatma Gandhi moved the resolution on Basic Education at Wardha constituting the national policy of free and compulsory primary

education in the age group 6 to 14. In 1944 the central advisory board of education submitted a plan for Post War Educational Development. It recommended universal, free and compulsory education for all boys and girls between 6 to 14 years of age, on the line of basic education.

After achievement of Independence compulsory primary education was given great importance. The first five year plan 1951-1956 contained recommendation for improving the existing system of primary education and expanding basic education by introduction of crafts in existing primary schools and by developing methods for training teachers with somewhat lower educational qualification. It is evident that there was general increase in the number of pupils in the age group of 6 to 11 and 11 to 14 years during the first five year plan period. On February 25, 1956, Radha Krishnon. The President of Indian republic said " we have adopted universal adult suffrage. This demands universal education. only then will the voters be able to comprehend national purpose and duty and use their vote not for selfish ends but for public welfare". While the resolution on the second five year plan members of the parliament expressed their views on education. According to Shiv Murathi Swami "it is mentioned in the Directive Principles of our constitution that within ten years primary education will be free and compulsory but there is no announcement in the second five years plan that we will made education free and compulsory.. In this plan no provision had been made to provide education to the villagers. The third five year plan gave importance on promotion of girls education. It gave emphasis on training facilities for teachers, adequate provision of books, teaching aids and equipments and organization of the teaching profession. The Indian Education commission 1964-1966 recommended that student should be taught either the mother tongue or the regional language along with mathematics, science, social studies, physical education, education in moral and the spiritual values, art. creative activities and health education. The committee of members of parliament on education 1967 made a set of recommendation to implement the national policy on primary education: 1. Provision of free primary education in all parts of the country.2. provision of arrangement for free-primary education 3. Qualitative improvements of primary schools 4. Adoption of ungraded system in class I and II and if possible up to class IV. 5. Children who can not attained full time schools should be given part time education 6. Special assistance should be provided to under develop areas for the expansion and improvements of primary

education by the government of India. The government while declaring the National Policy on Education, 1968 emphasized the importance of free and compulsory primary education. It recommended that "strenuous efforts should be made for the early fulfillment of the Directive principle under Article 45 of the constitution seeking to provide free and compulsory education for all children up to the age of fourteen. Suitable programmes should be developed in schools to ensure that every child who is enrolled in school successfully completes the prescribed course." During the third five year plan, arrangement were made for the education of children in the age group of 6-14 years. Housing facilities and other allowances were provided to the lady teachers especially in the rural areas. Sixty thousand primary schools were converted in to basic schools. In this plan Rs. 209 crores were spent in primary education. The fourth five year plan 1969-1974 encouraged enrollment of schedule caste and schedule tribe children and reduction in the drop out rate. Several measures were envisaged to achieve these objectives such as better organization of the schools, free supply of text books and the extension of the mid day meal program. The massive program of adult education envisaged in motivating parents to keep their children in schools by adjusting school timings and vocations to agricultural operations (sowing and harvesting) and modifying the curriculum to meet the local needs. Greater attention was paid to securing and increased in the enrolment of girls by supplying of women teachers. In the fifth five year plan period 1974- 1979 provisions were made for free distribution of text book and stationary, mid day meals and for girls uniform and attendance scholarships. For promoting education in the tribal areas many more tribal schools were proposed to establish where both education and maintenance were to be fully subside by the state. It proposed to lay much greater emphasis on curricular re-orientation, adoption of appropriate methodologies of teaching, upgrading of teachers competent through free service and in service training programs, intensive development of key institution, improvement of basic physical facilities and strengthening the district level educational administration. Adequate provision was made for additional enrolment in terms of teaching personnel and construction of class room especially in back ward areas. The sixth five year plan (1980-1985) proposed that the program of universalization of elementary education would be given serious consideration, especially in the educational back ward states and for reaching the socially disadvantageous who constitute the bulk of the non –attending children and of the drop outs. The approach to

universalisation of elementary education covers (i) intensified use of existing facilities including the adjustment of schooling hours which would not be more than three hours of a day; (ii) provision of economically viable and educationally relevant new facilities; (iii) promotion of a non- formal system of learning. According to the approach paper of seventh five year plan (1985-1990) the top most priority has been given to universal elementary education for children in the age group 6-14 by 1990. Since children belong to poor section of the society, especially the girls, can not afford to attain regular schools, the formal system of elementary education can not alone help in achieving the goal of universal elementary education of the age group 6-14. For this section of children and also for large scale drop out, the program of non- formal education was recommended so as to provide basic literacy to all children up to 14 years of age. In the eighth five year plan (1991-1995), priority was given to operation blackboard, non-formal education, teacher education, post literacy, continuing education and vocational education. Several schemes had been launched in the ninth five year plan (1997-2000) like Operation Black Board (OB), Non-Formal Education (NFE), Teacher Education (TE), National Programme of Nutritional Support to Primary Education (NPNSPE) (Mid-day Meal Scheme), District Primary Education Programme (DPEP), Total Literacy Campaign (TLC), Community Polytechnics (CP), Shiksha Karmi Project (SKP), Area Intensive Programme for Educationally Backward Minorities (AIPEBM) and Integrated Education for Disabled Children, etc to meet the needs of the educationally disadvantaged and to strengthen the social infrastructure in the sector.

Philosophy of primary education

Educational philosophers of different ages and countries contradict one another and there is complete absence of unanimity among them as to the supreme good at which education is supposed to aim. Some philosophers gave emphasis on the part that the child should be able to earn his living after finishing his education. This view is concerned with the basic needs of life like food, clothes and shelter. Mahatma Gandhi, the father of nation, stressed on self supporting education. Gandhiji desired that each boy and girl should be “self-supporting after leaving school by finding an occupation.” Enabling the student to be self supporting he incorporated the handicraft feature in education. Gandhiji remarked that “This education ought to be for them a kind of insurance against unemployment.” Elaborating the same idea,

he further says: " the child at the age of 14, that is, after finishing a seven year course, should be discharged as an earning unit". Besides self-supporting education Gandhiji attached far more importance to the cultural aspect of education. Culture is not the product of intellectual work but the quality of the soul permitting all aspects of human behavior. He thinks that cultural aspect of education will help in alleviating the blurred vision of pupils due to their clouded pride and prejudice. "By education," he says, "I mean an all-round drawing out of the best in child and man - body, mind, and spirit." Gandhiji lays greater emphasis on the education of the three H's (Hand, Heart and Head) than on that of the three R's (Reading, Writing and arithmetic). The three H's play important role in the education of the whole man. Here hand denotes hand writing. He says " good hand writing is a necessary part of education. Children should first be taught the art of drawing before learning how to write. Let the child learn the art of drawing before learning how to write. Let the child learn his letters by observation as he does different objects such as flowers, birds etc. and let him learn hand writing only after he has learnt to draw objects. He will then write a beautifully formed hand". Physical drill, handicrafts, drawing and music should go hand in hand in order to draw the best out of the boys and girls and create in them a real interest in their tuition. Education of the heart consists in the refinement of our emotions and impulses, awakening of our deepest feelings of love, sympathy, fellowship and aesthetic sense through drawing, music and handicrafts and following brahmachari life style. He firmly believes that true education of the head and heart can come through a proper exercise and training of the bodily organs. A proper and harmonious combination of all the three is required for the making of the whole man and constitutes the true economics of education. He laid so much emphasis on character-building ( develop courage, strength, virtue, righteousness, the ability to forget oneself in working towards great aims. This is more important than literacy. Gandhiji stressed upon the spirituality in education. According to Gandhiji the highest aim of education is the knowledge of God and self-realization, the merger of the finite being into the infinite. The education that was ardently sought after was a means to self- realization of the highest type – realization of not only the best that was in himself as an isolated individual, but as one whose spirit shared with the immortal universal spirit. Knowledge of secular things was considered inferior or apara, while the spiritual knowledge was regarded as a key to all other knowledge and was, therefore, called para – the supreme. The Hindu

students' ambition was to know that by which all other things are known, the knowledge of which would make a man humble and respectful, by which the unheard becomes heard, the unperceived becomes perceived, the unknown becomes known.

The greatness of Gandhiji as an educational philosophers consists In the fact that he does not raised content with the formulation of only one aim of education rather he sets forth a number of aims so as to embrace all aspects of human life, and subsumes them under an all-comprehensive ultimate aim after which human being ought to strive (Patel, 1953).

Tagore's thought

Education, according to Tagore, is the all-round growth and development of the individual in harmony with the Universal, the supreme person who has in himself the various levels or planes of consciousness and experience corresponding to man's physical self, life' mind and soul. "The highest education is that" he writes in an educational articles, A Poet's School, "which does not merely give us information but makes our life in harmony with all existence." Thus, to Tagore, education means, first, the liberation of all the aspects and powers of the personality, namely, the senses, the vital energies, the various mental capacities including intelligence and imagination, as also the functions of the heart – its feelings, emotions, sympathies and love; secondly, free, untrammelled interaction by means of the energies and powers thus released with the perennial realities of the universe: Nature, Man, and the Universal Man, who contains within himself and transcends both Nature and Man. The pupil has to learn and apply three functional principles of self-education : (I) freedom – He has to learn the three freedoms, that is freedom of the intelligence, freedom of the heart and freedom of the will. In other words, he has to learn to apply, at all levels of experience, the three ways of knowledge, love and devotion and works. It is only by cultivation of detachment, equality, balance and a sense of harmony with all things that the people can keep his intelligence, heart and will really free. With the help of these liberated powers he has constantly to discriminate between the true and the false, the natural and the artificial, the relevant and the irrelevant and so on; (ii) fullness : The pupil should be free to develop all the powers and aspects of his personality equally according to his own inclination. The faith is to be inculcated in him that his true fulfillment lies in the full growth of his personality and not in gaining any other purpose, e.g. vocational skill, success in

examination, social prestige etc. (iii) universalization : The ultimate aim of education is not only growth but a new birth, an evolutionary forward movement, a contact and progressive identification with a vaster life, a universal self. Here also, it is essential for the pupil to have faith in the existence of vaster outside his ego, of a higher and wider reality. He has to learn to discover this universal principle in all facts and phenomena of nature and human life and find out its kinship and significance to his own inner self.

Thoughts of Sri Aurobindo

Education of a human being begins at birth and continues through out his life. Education to be complete must have five principle aspects corresponding to the five principle aspects of the human being: the physical, the vital, the mental, the psychic and the spiritual. These phases of education follow chronologically the growth of the individual. This does not mean that one of them should replace another, but that all must continue, completing one another until the end of his life.

Physical education has three principle aspects : (1) control and discipline of the functioning of the body (2) an integral, methodical and harmonious development of all the parts and movement of the body and (3) correction of any defects and deformities. From ones very childhood one should know that one eats in order to give strength and health to the body and not to enjoy the pleasures of the palate. The child should be taught how to enjoy cleanliness and observe hygienic habits. As soon as child is able to make use of his limbs, some time should be devoted everyday to the methodical and regular development of all the parts of his body.

The vital education has two principle aspects : the development and use of the sense organs, progressing awareness and control of the character culminating in its transformation. Children should be taught how to be conscious of the various movements in one self and be aware of what one does and why one does it. He must be taught to observe to note his reactions and impulses and their causes, to become a discerning witness of his desires, his movements of violence and passion, his instincts of possession and appropriation and domination and the back ground of vanity which supports them, together with their counter parts of weakness, discouragement, depression and despair. By vital education one must gain a full knowledge of ones character and then acquire control over one’s movements in

order to achieve perfect mastery and the transformation of all the elements that have to be transform.

Mental education has five principle phases. Normally these phases follow one after another but in exceptional individuals they may alternate or even proceed simultaneously. These five phases are (1) development of the power of concentration, the capacity of attention (2) development of the capacity of expansion, widening, complexity and richness (3) organization of one's ideas around a central idea, a higher ideal or a supremely luminous idea that will serve as a guide in life (4) thought control, rejection of undesirable thought (5) development of mental silence, perfect calm and more total receptivity to inspiration coming from the higher regions of the being.

With psychic education individual learns the purpose of life on earth, the discovery to which this life must lead and the result of that discovery: the consecreation of the individual to his eternal principle. By these psychic and spiritual education individual carries a sense of universality, limitless expansion, unbroken continuity. One begins to live in all things and in all beings; the barriers separating individuals from each other breakdown

Aurobindo suggested practice of fourfold discipline or tapasya in life : tapasya of love, tapasya of knowledge, tapasya of power, tapasya of beauty . It is amazing that more than a hundred years ago Swami Vivekananda had anticipated some of the problems that we are encountering to-day. He wrote once: " Suppose you start schools all over India for the poor, still you cannot educate them for the poverty in India is such that the poor boys would rather go to help their fathers in the fields or otherwise try to make a living than come to school. But if the mountain does not go to Mohammed, then Mohammed must go to the mountain. If the poor boy cannot come to education, education must go to him". This is precisely the problem we are facing with regard to elementary education for girls and boys of the poorer classes who have to work in order to eke out a living for their families.

## Psychological perspectives of Academic motivation

In studying academic motivation, psychologists paid attention to study the intrinsic and extrinsic academic motivation. Intrinsic motivation concerns the performance of activities for their own sake, in which pleasure is inherent in the activity itself (Berlyne, 1965; Deci, 1975; Eccles, Wigfield, and Schiefele, 1998). Academic intrinsic motivation specifically

focuses on school learning (A. E. Gottfried, 1985,1990), pleasure derived from the learning process itself (Berlyne, 1971), curiosity (Berlyne, 1971; Maw, 1971), the learning of challenging and difficult tasks (Lepper, 1983; Pittman, Boggiano and Ruble, 1983), persistence and a mastery orientation (Harter, 1981; Lepper, 1983), and a high degree of task involvement (Brophy, 1983; Nicholls, 1983). Children with higher academic intrinsic motivation have higher achievement, more favorable perceptions of their academic competence, and lower academic anxiety from childhood through adolescence (Gottfried, 1985, 1990; Gottfried, Fleming and Gottfried, 1994; Gottfried, and Gottfried, 1996; Gottfried, Gottfried, Bathurst, and Guerin, 1994). A. E. Gottfried, Fleming and Gottfried (2001) found that academic intrinsic motivation is a stable construct from childhood (9 years of age) through late adolescence(17 years of age). By age 9, a substantial degree of academic intrinsic motivation has developed in which each prior age serves to predict the subsequent age.

## Psychological perspectives of reading motivation

In development of questionnaire on reading motivation, Guthrie et.al. (1997) explored following psychological perspectives:

### Self-efficacy belief

Motivation to read depends on self-efficacy of students. Schunk and his colleagues (Schunk,1991; Schunk and Zimmerman,1997) demonstrated that children's sense of efficacy relates to their academic performance. Self efficacy refers to an individual's perception or assessment of his or her ability to cope satisfactorily with given situations (Bandura, 1977). Self-efficacy judgements are concerned "not with the skills one has but with judgements of what one can do with the skills one possesses". In self-efficacy, different sub skills are organized into courses of action. He proposed that individuals' efficacy for different achievement tasks are a major determinant of activity choice, willingness to expend effort, and persistence.

Task Value

Eccles et . al . (1983) defined different components of task values, including interest value (how much the individual likes the activity); attainment value (the importance of activity) and utility value (the usefulness of an activity). Eccles and her colleagues found that students' ability beliefs and expectancies for success predict their performance in mathematics and English, whereas their subjective task values predict both intentions and actual decisions to keep taking mathematics and English, even when previous performance is controlled (Eccles et.al., 1983; Meece, Wigfield & Eccles, 1990; Wigfield & Eccles, 1992).

Reading attitude

Attitudes toward reading are defined generally as individuals' feelings about reading (J.E. Alexander & Filler, 1976). Alexander and Filler stated that these feelings about reading should influence how much individuals involve themselves in reading.

Reading interest

Interest in reading appears to be an important variable as influencing different aspects of reading performance. P. A. Alexander, Kulikowich & Jetton, 1994; Schiefele (1996) and Reninnger (1992) studied how interest to a task affects it's comprehension. Schiefele (1996) found that college students who were interested in the text materials understood those materials more deeply than did students less interested in the materials, even when the students' prior knowledge of the materials and general intelligence were controlled. In studies of fifth and sixth graders, Renninger (1992) found that interest in the materials enhanced comprehension, even of materials that were quite difficult for the children.

In considering the above perspectives of reading motivation, Wigfield and Guthrie (1995 , 1997) identified few "extrinsic " reasons such as receiving recognition (Dici and Ryan , 1985) and intrinsic motives for reading as reading curiosity (the desire to learn about a particular topic of interest to the child ) , reading challenge (the satisfaction of mastering or assimilating complex ideas in text) ; reading importance (subjective task values as reported by Eccles et . al. 1983; Wigfield and Eccles 1992 , in their work) , reading

involvement (the enjoyment of experiencing different kinds of literary and informational text) whereas extrinsic motivation and performance goals include competition in reading (the desire to outperform others in reading) , recognition for reading (the gratification in receiving a tangible form of recognition for success in reading) and reading for grades (the desire to be evaluated favorably by the teacher).

## Psychological Perspectives of Writing Motivation

### Self – efficacy

Like reading motivation Bandura's (1986) self- efficacy belief was associated with different writing outcomes. Pajares and Valiante (2001) defined writing self efficacy as students' judgements of their confidence that they possess the various compositions, grammar, usage, and mechanical skills appropriate to their academic level. They (in press) demonstrated that students' confidence in writing capabilities influence their writing motivation as well as various writing outcomes in school. In another study (Pajares and Valiante,2001) gender differences in writing motivation were noted. Girls reported stronger writing self efficacy, writing self concept, self efficacy for self regulation, value of writing, and task goals, and they received higher grades in language arts. Boys reported stronger performance-approach goals. All gender differences favoring girls in writing motivation and achievement were rendered non significant when feminine orientation beliefs were controlled. Findings suggest that a feminine orientation is adaptive in the area of writing, whereas a masculine orientation is beneficial when escorted by a feminine orientation.

### Writing interest

Marsha, Stephen and Khramtsova (1996) made one experiment. Two hundred twenty-four undergraduate students wrote about one-half of an innings of a baseball game and about one-half of a soccer game, counterbalanced, for 20 min each. Students then completed two six-item interest inventories one each on the topics of baseball and soccer and tests of baseball knowledge and soccer knowledge. Hierarchical regression analyses revealed that individual interest in baseball was significantly related to the proportions of game actions and irrelevant-non game actions, controlling for gender, discourse knowledge, and topic

knowledge. Topic knowledge was significantly related to thematic maturity, controlling for gender and discourse knowledge. Students wrote more topic-relevant information on the baseball story a relatively high-interest topic than on the soccer story, a relatively low-interest topic.

Developing motivation to write

Bruning, Christy (2000) noted intellectual and social rewards for writing. Speech development provides some models for development of writing motivation. Writing requires special attention to motivational conditions. Four clusters of conditions are proposed as keys to developing motivation: nurturing functional beliefs about writing, fostering engagement using authentic writing tasks, providing a supportive context for writing, and creating a positive emotional environment. Teachers' own conceptions of writing are seen as crucial to establishing these conditions in most writing contexts. Schunk and Swartz (2002) investigated how goal setting and progress feedback affect self-efficacy and writing achievement. Children received writing strategy instruction and were given a process goal of learning the strategy, a product goal of writing paragraphs, or a general goal of working productively. Half of the process goal children periodically received feedback on their progress in learning the strategy. In another experiment of this same study, they explored transfer (maintenance and generalization) of achievement outcomes. The process goal with progress feedback treatment had the greatest impact on achievement outcomes to include maintenance and generalization; the process goal without feedback condition resulted in some benefits compared with the product and general goal conditions. Self-efficacy was highly predictive of writing skill and strategy use.

Social Cognitive Model

Zimmerman and Risemberg ( 1997 ) assumed that writing activities are usually self-planned, self-initiated, and self-sustained. So, they presented a a social cognitive model of writing composed of three fundamental forms of self-regulation: environmental, behavioral, and covert or personal. Each of these triadic forms of self-regulation interact reciprocally via a cyclic feedback loop through which writers self-monitor and self-react to feedback about the effectiveness of specific self-regulatory techniques or processes. They concluded that

writing self-regulation is a complex system of interdependent processes that are closely linked to an underlying sense of self-efficacy.

## Studies of academic motivation in other disciplines

Social scientists other than psychologists identified different factors influencing academic motivation of students in primary education.

### PROBE study

PROBE (Public Report On Basic Education) identified some obstacles of poor academic motivation of students in primary education. The report noted that going to school was neither attractive nor stimulating for the child. Some of the reasons for this deficiency were dilapidated and filthy school building, overcrowded class room with shortage of teachers, no use of teaching aids, alien curriculum, lack of textbook. Copying and cramming were the most common teaching methods. There was no craftwork or colour or music, or physical activity. There was gender bias and quiet discrimination against children of disadvantaged background.

**Pratichi Trust study**

Professor Amartya Sen highlighted report of PROBE in his preface on Pratichi trust report. Professor Sen intensively studied 6 of each primary schools and shishu shiksha kendras of three districts of West Bengal - Birbhum, Bankura and Purulia. He identified some important problems in primary school education – financial stringency, class division, teachers' irresponsibility and absenteeism. He suggested few measures like – prohibiting private tuition, parents-teachers committee, providing infrastructure facilities, mid-day meals rather dry rations. Besides the above, there have been some extensive studies on parental aspirations which are assumed to be determining factors for academic motivation of students.

**Sociological Studies**

In a survey on elementary education in rural India Pande (2001) and Srivastava (2001) noted that basic intentions of parents for sending their children to schools were economic benefits, enhancement of social status and improving educational capabilities. Pande (2001) questioned the reasons for educating their children to the parents of Bhimtal and Chamba Districts of Uttarakhand and noted that most of them considered future economic benefits of education (47.3%) and enhancement of social status (25%), empowerment of people (11%) were the main reasons for sending their students to school. In another study Srivastava (2001) asked the parents of Rampur and Ballia of Uttar Pradesh to indicate which of the following consideration 'economic improvement', 'social upliftment', 'improved educational capabilities', 'gender-specific reasons for girls', and 'incentive from school'- were the main reasons and which were the three most important reasons for sending their children to school. They were asked to give these information separately for boys and girls. An analysis of the responses shows that 'economic improvement', 'improved educational capabilities' and 'social upliftment' were cited as the most important motivation for educating boys. In case of girls social reasons predominate, 'improving their educational skills being the most frequently cited motivation; 'acquisition of gender specific social skills that improved their marriage prospect' was the second most important reasons for the parents.

# RESULTS : 1

## CONTENT ANALYSIS

### A: Theoretical considerations

Content analysis was followed for classification of statements based on themes of responses of the respondents. All knowledge that we comprehend, learn and communicate is content and the way, the logic or the system with which we express, analyze or interpret this content is its analysis (Sinha, 1980). Waples and Berelson (1941) were probably the first to lay down a systematic definition of content analysis : "systematic content analysis attempts to define more causal descriptions of the content so as to show objectively the nature and relative strength of the stimuli applied to the readers or listeners. Content analysis is concerned with different units like word (phrases as well as single words), theme (underlying thought of a story, novel, drama or poem), character, item (classified material like book, magazine, article, story, radio program), space-time measure (Column inch of a news paper, a page or a line of a book) and international unit. These different units are analyzed using two methods : conceptual analysis (Palmquist, Carley, & Dale ,1997; Smith, 1992) and relational analysis (Palmquist, Carley, & Dale, 1997; Carley, 1992; Gottschalk ,1995). In conceptual analysis, a concept is chosen for examination, and the analysis involves quantifying and tallying its presence. On the other hand in relational analysis the focus of attention is to look for semantic, or meaningful relationships among the concepts identified. Since the aim of this study was to explore the reading motives from the subjects' interview responses to the questions related to the causes of reading, more emphasis was given on the implicit ideas of the responses rather than on the explicit content of responses, relational analysis was followed. Relational analysis follows three perspectives: affect extraction (extracting emotional concepts and assigning them numeric values on corresponding emotional/psychological scales for statistical examination); proximity analysis (forming a matrix of a group of interrelated, co-occurring concepts); cognitive mapping (evaluating how meanings and definitions of a text or a item changes across people and time).

## B: METHODS

### Sample

Initially 10 primary schools were randomly selected out of the listed primary schools (Wardwise list of Primary Schools of Calcutta District Primary School Council) . Data were collected from 50 boys (25 boys X 2 grades) and 50 girls (25 girls X 2 grades). In sample selection special attention was paid to collect the data from high and low achiever students assuming that this would reveal more number of reading motives with different varieties..The mean age for boys was 8.72 with SD 1.25 and that for girls was 9.22 with SD 1.09.

### Procedure

Data were collected through unstructured interview method. . Each interview took place in a private office provided by the Head of the Institution.. When a student entered, the interviewer introduced her self and went on to establish rapport and explained the purpose of the study. The students were told that participation in the interview was voluntary and could be withdrawn at any time. Sample of one unstructured interview is given below:

*Interviewer: What is your name?*
*Interviewee: Miss X*
*Interviewer: In which class do you read in?*
*Interviewee: In class III*
*Interviewer: How older are you?*
*Interviewee: I am 9 years old.*
*Interviewer: Do you want to read the text book if you are not asked to do so?*
*Interviewee: Yes I want to read the text book.*
*Interviewer: Can you tell me few reasons for your reading the text book ?*
*Interviewee: I want to read because …….*

The interviewer recorded the students' answers in a cassette recorder. Finally the verbatim records were written on the notebook for analysis of the responses. The reasons for negative answers were not used in this study.

## C: RESULTS

*Exploring Reading Motives*

Here each interview response was classified into two parts – causes or predicting variables and the effect or predicted variables. Statements associated with themes of book reading motivation were initially judged as predicted variables and statements associated with themes about determinants of book reading were classified as predicting variables. For example, statement – 'I want to read the text book' is predicted variable and the statement 'to get parental affection' is the predicting variable for the full statement ' I want to read the text book to get parental affection'. Then predicting variables were classified into intrinsic and extrinsic motivation variables. For example, to get parental affection is the statement of extrinsic motivation factor . And 'as I love it' is the intrinsic motivation factor for full statement ' I read the book as I love it'. . Finally, the intrinsic and extrinsic statements bearing the same inner meaning were further grouped under related dimensions following Murray's theory of motivation (Murray, 1938).. For example the statements such as " My parents would love me if I read the book", "I study to get teachers' affection " "I may miss my friends if I do not read the book" were grouped under the dimension of need for affiliation. Again the statements such as "I study to secure good results " , " I may get high marks if I read the book properly", " I may get good job in future " were grouped under the dimension of need for achievement.

It was noted that respondents put stress on seven reading motives namely, application, knowledge, achievement, aesthetic, affiliation, recognition and harm avoidance. The first four motives were considered as intrinsic reading motives as they were connoted with reading the book for own interest. The remaining three motives namely affiliation, recognition and harm avoidance were classified as extrinsic reading motives as they were connoted with reading the book for other sake. Prior study (Wigfield and Guthrie, 1997 ) based upon self-efficacy model of Bandura did not pay attention to application, aesthetic and harm avoidance motives for reading behavior. Other motives like knowledge, achievement, affiliation, recognition were in conformity with the content of dimensions of curiosity, challenge, social and recognition motives noted by Wigfield and Guthrie in 1997.

*Determining relative importance of reading motives:*

Finally relative importance of statements was estimated by the following equation :

$$RI = \frac{\text{Number of identical statements}}{\text{Total Number Of statements}} \times 100$$

In which RI = Relative importance of statements.

Statements were grouped into different reading motives and their relative importance was estimated by averaging their percentages.

Table 1.1 and 1.2 show that more than 50% students reported that they were mainly interested in reading due to the urge of applying their knowledge in reality and knowing about different things. This suggests that unstructured interview method is an useful technique to explore different dimensions of reading motives.

## DISCUSSION

A hierarchy of reading motive preferences was noted in this study. Students preferred recognition, application, knowledge, and achievement motives than to the aesthetic, affiliation and harm avoidance motives for their motivation to reading. Since the samples were passing through the developmental stages, the interpretation of results need to consider correlation between changes in development and reading motive preferences. The age of the current sample ranged from 8 to 11 years, i.e., they were passing through the latency stage of Freudian stages of psychosexual development and the stage of industry vs. inferiority of Erikson's theory of development.In the latency period Freud observed that Children develop tendency to explore the environment and to become more proficient in dealing with the world of things and persons around them. Erikson also suggested that children of this age group have a sense of industry that is a " sense of being able to make things and make them well and perfectly". So possibly due to this reason, present study revealed major role application and knowledge in reading motivation. Erikson observed that children of this age group pass through a conflict between industry vs,. inferiority. Possibly, due to the sense of inferiority, present study reveals major role of recognition and affiliation as extrinsic motives for reading motivation.

Table 1.1
*Intrinsic motives for reading motivation*

| Intrinsic motives | % | Rank |
|---|---|---|
| ***N application*** | 64 | 1 |
| Desire to relate lessons with | 64 | |
| | | |
| ***N Knowledge*** | 53 | 2 |
| Curiosity to know new things | 50 | |
| Desire to follow class instructions | 56 | |
| | | |
| ***N achievement*** | 38.8 | 3 |
| Desire to improve previous performance | 40 | |
| Desire to master over the difficult task as a challenge | 26 | |
| Desire to finish the home assignments seriously | 60 | |
| Desire to be excellent | 68 | |
| | | |
| N aesthetic | 24 | 4 |
| Interest in color, style, picture, painting etc. | 24 | |

Table 1.2
*Extrinsic motives for reading motivation*

| Extrinsic motives | % | Rank |
|---|---|---|
| ***N Affiliation*** | 47.3 | **1** |
| Desire to get parental affection | 50 | |
| Desire to get teachers affection | 74 | |
| Desire to get peers affection | 18 | |
| | | |
| ***N Recognition*** | 39 | **2** |
| Desire to be encouraged by teachers | 40 | |
| Desire to be praised by teachers | 38 | |
| | | |
| ***N Harmavoidance*** | 11.5 | **3** |
| Desire not to be cheated | 8 | |
| Desire to avoid scolding | 15 | |
| | | |
| ***Other factors*** | 27 | |
| Desire to get parental educational support | 42 | |
| Desire to get educational support from teachers | 12 | |

# RESULTS : 2

## ITEM FRAMING AND FACE VALIDITY

### A : Theoretical Considerations

In psychological test development, item plays an important role as the reliability and validity of the test depends upon the different psychometric properties of items. Item is the unit of psychological test. It is the representative sample of the attribute of behavior being measured by the psychological test. In item framing, the test developer pays attention to (a) whether the item measures the attributes of construct for which the test is going to be developed and (b) whether the item is able to determine the individual difference in behavior. Former can be studied using face validity technique.

Face validity is an useful technique to understand whether the test items measure the representative behavior of psychological construct measured by the test or not. According to Anastasi (1990) face validity should not be confused with content validity. To her, face validity is not validity in the technical sense as instead of measurement it superficially assesses the extent of relevance of the test items. In a provocative article, Nevo (1985: Nevo & Sfez, 1985) called attention to the paucity of available research on face validity, despite it's probable contribution to prevalent attitudes toward tests. He proposed a quantitative assessments of face validity by having test takers and other psychometrically unsophisticated interested persons rate the suitability of the test for it's intended use.

Face validity helps in reformulating test items in terms that appear relevant and plausible in the particular setting.

### B: Methods

It consisted of two sections: (a) item framing (b) determining face validity

### SECTION A

<u>Framing items</u>

Seven reading motives namely application, knowledge, achievement, aesthetic, affiliation, recognition and harm avoidance explored previously were operationally defined:

**Application:** Motivation to read for applying the knowledge in reality.

**Knowledge:** Motivation to read for understanding of different information.

**Achievement:** Motivation to read to master the difficult task.

**Aesthetic:** Motivation to read well designed, pictured book.

**Affiliation:** Motivation to read for getting others love.

**Recognition:** Motivation to read for obtaining praise or rewards.

**Harm avoidance:** Motivation to read to avoid punishment or other negative outcomes

.

Since purpose of this study was to develop a questionnaire for the students of primary education a set of precautions were considered:

- The questionnaire should be short and simple to read and to answer.
- The respondents should not feel any difficulty related to conceptualizing the extent of specific reading motive preference like Likert type scale.
- Collection of the data should be less time consuming.

In considering the above precautions it was assumed to develop a questionnaire with paired associated alternative items for a set of specific events or conditions. . Following steps were followed :

Constructing the events:

Initially, an attempt was made to conceptualize the life style activities of the children related to their academic behavior. Secondly specific type of reading motivation problems were intuited. Next, different events were constructed so that they represent specific reading motivational problems and respondents could solve the problems by choosing only one answer out of the two alternatives.

Constructing alternative items :

For each event two alternative paired associated items were constructed in such a manner so that each alternative item represented behavior of one reading motive out of seven. For construction of alternative answers, operational definition of reading motives, respondents' interview responses and early studies on reading motivation questionnaire (Wigfield and

Guthrie, 1997) were thoroughly studied. In this way 42 items (6 items X 7 types of motives) were constructed for 21 events or conditions. .

Evaluation of events :

Following criteria were followed to evaluate items:

(a) the event should not be repeated ; (b) event should match with the question of specific event (c) the event should cover regular academic life style activities of the students namely visiting library, promotion to classes, answering to difficult question, home study, exhibiting the creative work academic tour, celebrating D'day etc. Besides other common criteria were followed

Evaluation of items:

The items are evaluated and modified on the basis of criteria given by Wang (1932), Thurstone and Chave (1929), Likert (1932) Bird (1940), and Edwards and Kilpatrick (1948):

- Statements were formulated in present form.
- Factual statements were avoided.
- Statements that may be interpreted in more than one way were avoided.
- Statements relevant to the present psychological construct were included.
- Statements that cover entire range of interest were included.
- Simple, clear and direct sentences were chosen for writing statements.
- Statements were written within 20 words.
- Each statement contains only one complete thought.
- The words like all, always, none and never were avoided.
- Words that may not be understood by the present sample were avoided.
- Double negatives in the statement were avoided.

## SECTION B

Face Validity:

In order to determine face validity, the questionnaire was administered to 20 class teachers of class III and IV of Government and Government-undertaken schools and 20 class teachers of private schools along with the operational definition of each reading motive. The teachers had teaching experience of more than 5 years.in specific classes. They were requested to match the statements of each item set with the given operational definitions of the motives.

## C: RESULTS

Data were analyzed in terms of the percentage distribution of correct matching of each statement with its corresponding reading motive (Table 2.1). It was noted that six statements, 2a (15%), 9b (5%), 10b (45%), 13a (40%), 14a (20%), 16a (5%), were matched with respective reading motives less than 50%. Hence these six statements were redesigned for the final questionnaire development.

Table 2.1
*Distribution of item matching in percentage*

| Dimensions | Item no. | Frequency of correct matching (N=40) | % | Dimensions | Item no. | Frequency of correct matching | % |
|---|---|---|---|---|---|---|---|
| Application | 1a | 28 | 70 | Achievement | 3b | 22 | 55 |
| | 6b | 32 | 80 | | **10b** | **18** | **45** |
| | 7a | 30 | 75 | | 11a | 28 | 70 |
| | **9b** | **2** | **5** | | **16a** | **2** | **5** |
| | 17a | 36 | 90 | | 17b | 36 | 90 |
| | 21a | 24 | 60 | | 20a | 36 | 90 |
| Knowledge | 1b | 28 | 70 | Aesthetic | 4b | 38 | 95 |
| | **2a** | **6** | **15** | | 6a | 28 | 70 |
| | 4a | 38 | 95 | | 8a | 28 | 70 |
| | 14b | 38 | 95 | | 10a | 34 | 85 |
| | 16b | 28 | 70 | | 12b | 36 | 90 |
| | 19a | 34 | 85 | | **13a** | **16** | **40** |
| Affiliation | 2b | 38 | 95 | Harm avoidance | 5a | 28 | 70 |
| | 13b | 38 | 95 | | 7b | 26 | 65 |
| | 15b | 30 | 75 | | 8b | 32 | 80 |
| | 18a | 26 | 65 | | 11b | 32 | 80 |
| | 20b | 24 | 60 | | **14a** | **8** | **20** |
| | 21b | 34 | 85 | | 15a | 24 | 60 |
| Recognition | 3a | 30 | 75 | | | | |
| | 5b | 32 | 80 | | | | |
| | 9a | 22 | 55 | | | | |
| | 12a | 20 | 50 | | | | |
| | 18b | 36 | 90 | | | | |
| | 19b | 26 | 65 | | | | |

# RESULTS : 3

## TEST- RETEST RELIABILITY

### A. Theoretical consideration

Objective evaluation is essential for determining the appropriateness of a psychological test Such evaluation involves primarily the determination of reliability and validity of the test in specified situations. Reliability refers to the consistency of scores obtained by the same persons when reexamined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions (Anastasi, 1990). It indicates the extent to which individual differences in test scores are attributable to "true" differences in the characteristics under consideration and the extent to which they are attributable to chance errors. Reliability of a test is given by the proportion of true variance resulting from the presence of specific situation under consideration and error variance resulting from the presence of some factors irrelevant to the present situation.

Four principal techniques are used for measuring the reliability of test scores: (a) Test – Retest Reliability: Reliability is tested by repeating the identical test on the second occasion. In this technique, the error variance may result in part from uncontrolled testing conditions, such as extreme changes in weather, sudden noises and other distractions. To some extent, however, they arise from changes in the condition of the test takers themselves, such as illness, emotional strain, worry, recent experience of pleasant or unpleasant nature and the like. (b) Alternate – Form Reliability: Instead of repeating the same test on second occasion, a parallel form having the same characteristics of the original form is administered in successive session. The error variance in this case represents fluctuations in performance from one set of items to another.(c) Split-Half reliability- It provides a measure of consistency with regard to content sampling The test scores is divided into two equivalent halves and reliability coefficient is measured between these two halves following the formula given by Rulon (1939). Any difference between a person's scores on the on the two halves represents the error variance. This type of reliability coefficient is sometimes called a coefficient of internal consistency, since only a single administration of a single form is required. (d) rational equivalence- This method stresses the inter-correlation coefficients of the items in the test and the correlation coefficients of the items with the test as a whole. It

utilizes a single administration of a single form and is based on the consistency of responses to all items in the test (inter-item consistency). This inter-item consistency is influenced by two sources of error variance: (i) content sampling (ii) heterogeneity of the behavior domain sampled.

## B: METHOD

### Sample

Initially data were collected from 136 students (70 students of class III and 66 students of class IV) of one Government school. After eight months, the reading and writing motivation questionnaires were re-administered to 90 samples in considering their availability. Among them 18 students gave incomplete data for reading motivation questionnaire and 20 data for writing motivation questionnaire. So test-retest reliability for reading motivation questionnaire was assessed using 72 data (26 students of class III and 46 students of class IV). and for writing motivation questionnaire using 70 data ( 30 students of class III and 40 students of class IV). The mean age for grade III students was 8.5 years with SD 0.5 and same for the grade IV students was 9.5 years with SD 0.6.

### Measures

Reading motivation questionnaire

The questionnaire consisted 42 paired associated items for 21 conditions.. Each item assessed preference to different reading motives. The reading motives were application, knowledge, achievement, aesthetic, affiliation, recognition, and harm- avoidance. There were 6 items for each motive in paired manner (6 items X 7 reading motives = Total 42 items).. Subjects were asked to choose one answer out of two alternatives which he thought more appropriate if the given situation would be true for him. Scoring was made on the basis of subjects' preference to number of alternative answers for each category of reading motive. For each reading motive the maximum possible score was 6 and the minimum possible score was 0.

Examples of the questionnaire are given below:

1. Suppose, after promotion to a new class you are offered to read two books with two different titles. Which one will you like to read first?

(a) Learning of mathematics through daily activities.

(b) Study of animals of different countries.

2. Suppose one day you were absent in school. Next day you ask your friends to give their copy. You get two copies. Which one will you like to read first?

(a) A newly covered copy with good hand writings.

(b) The copy of your best friend.

Writing motivation questionnaire

The questionnaire consisted 42 paired associated items for 21 conditions.. Each item assessed preference to different writing motives. The writing motives were documentation, emotional expression, creativity, affiliation, recognition, harm avoidance, achievement. These 7 motives were conceptualized in terms of own intuition, surveying message boards of the internet and review of literatures (Pajares, Britner, Valiante, 2000; Pajares & Valiante, 2001). There were 6 items for each motive in paired manner (6 items X 7 writing motives = Total 42 items).. Subjects were asked to choose one answer out of two alternatives which he thought more appropriate if the given situation would be true for him. Scoring was made on the basis of subjects' preference to number of alternative answers for each category of reading motive. For each reading motive the maximum possible score was 6 and the minimum possible score was 0.

Examples of the questionnaire are given below:

1. A magazine will be published from your school. You were asked to compose one article on your own. Why do you write?

(a) I will write as I like to write from my own.

(b)I will write in order to get teachers' love.

2. Suppose one of your friends were absent yesterday. He requested you to write down what was written by the teacher in the previous class. Why do you want to write?

(a) If I write my friend will admire me.

(b) If I write I might clear all the difficulties in my study.

Procedure

Initially purpose of the study was clearly explained to the school principal. She was informed of twice administration of the same questionnaire to same students of her school. The questionnaire was administered in twice. In other words each respondent gave responses to 84 (42 items X 2 times) items of reading motivation questionnaire and 84 (42 items X 2 times) items of writing motivation questionnaire, that is, 12 items per motives for each questionnaire.

## C: RESULTS

Test-Retest reliability of Reading Motivation Questionnaire

Reading motivation questionnaire included 42 items (7 reading motives X 6 items). Table 3.1 shows no significant mean differences in 35 items (83%) between two sessions suggesting high test-retest reliability of the questionnaire.

In case of domain wise comparisons there were no significant mean differences in total scores of 5 reading motives out of 7 (71.43) suggesting high test-retest reliability of the questionnaire. Finally rank order correlation coefficient of mean scores of 42 items in together shows very high relationship ($r(40)=0.96$, $p<0.01$) in responses between the sessions.

Test-Retest reliability of Writing Motivation Questionnaire

Writing motivation questionnaire included 42 items (7 writing motives X 6 items). Table 3.2 shows no significant mean differences in 36 items (86%) between two sessions suggesting high test-retest reliability of the questionnaire.

In case of domain wise comparisons there were no significant mean differences in total scores of 6 writing motives out of 7 (86%) suggesting high test-retest reliability of the questionnaire. Finally rank order correlation coefficient of mean scores of 42 items in together shows very high relationship ($r(40)=0.96$, $p<0.01$) in responses between the sessions.

Table 3.1

*Test retest reliability of Reading Motivation Questionnaire (n=72) using both t-test and correlation coefficients*

| | | First session | | Second session | | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | t-ratio(df=71) | Correlation |
| Application | 1A | 0.75 | 0.44 | 0.65 | 0.48 | 1.41 | |
| | 6B | 0.78 | 0.42 | 0.72 | 0.45 | 0.81 | |
| | 7A | 0.96 | 0.2 | 0.92 | 0.28 | 1.00 | |
| | 9B | 0.85 | 0.36 | 0.94 | 0.23 | -1.84 | |
| | 17A | 0.71 | 0.46 | 0.69 | 0.46 | 0.19 | |
| | 21A | 0.78 | 0.42 | 0.93 | 0.26 | -2.99 | |
| | Total | 4.82 | 1.14 | 4.86 | 1.01 | -0.23 | 0.706 |
| Knowledge | 1B | 0.25 | 0.44 | 0.35 | 0.44 | -1.41 | |
| | 2A | 0.94 | 0.23 | 0.94 | 0.23 | .00 | |
| | 4A | 0.85 | 0.36 | 0.89 | 0.32 | -.83 | |
| | 14B | 0.89 | 0.32 | 0.86 | 0.35 | .53 | |
| | 16B | 0.79 | 0.41 | 0.63 | 0.49 | 2.43 | |
| | 19A | 0.74 | 0.44 | 0.83 | 0.38 | -1.41 | |
| | Total | 4.46 | 1.05 | 4.5 | 1.01 | -0.27 | 0.93** |
| Affiliation | 2B | 0.06 | 0.23 | 0.06 | 0.23 | .00 | |
| | 13B | 0.49 | 0.5 | 0.47 | 0.5 | .19 | |
| | 15B | 0.82 | 0.39 | 0.79 | 0.41 | .44 | |
| | 18A | 0.19 | 0.4 | 0.28 | 0.45 | -1.42 | |
| | 20B | 0.24 | 0.43 | 0.11 | 0.32 | 2.11 | |
| | 21B | 0.22 | 0.42 | 0.07 | 0.26 | 2.99 | |
| | Total | 2.01 | 0.96 | 1.78 | 1.02 | 1.56 | 0.95 |
| Recognition | 3A | 0.28 | 0.45 | 0.15 | 0.36 | 1.83 | |
| | 5B | 0.76 | 0.43 | 0.83 | 0.38 | -1.09 | |
| | 9A | 0.15 | 0.36 | 0.06 | 0.23 | 1.84 | |
| | 12A | 0.54 | 0.5 | 0.33 | 0.47 | 2.64 | |
| | 18B | 0.81 | 0.4 | 0.72 | 0.45 | 1.42 | |
| | 19B | 0.26 | 0.44 | 0.17 | 0.38 | 1.41 | |
| | Total | 2.81 | 0.96 | 2.26 | 1.11 | 3.40** | 0.96** |
| Achievement | 3B | 0.72 | 0.45 | 0.85 | 0.36 | -1.83 | |
| | 10B | 0.74 | 0.44 | 0.78 | 0.42 | -.73 | |
| | 11A | 0.82 | 0.39 | 0.83 | 0.38 | -.23 | |
| | 16A | 0.21 | 0.41 | 0.38 | 0.49 | -2.43 | |
| | 17B | 0.29 | 0.46 | 0.31 | 0.46 | -.19 | |
| | 20A | 0.76 | 0.43 | 0.88 | 0.33 | -1.92 | |
| | Total | 3.54 | .89 | 4.01 | 1.23 | -3.45** | 0.97** |

Table 3.1 (contd..)

| | | First session | | Second session | | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | t-ratio(df=71) | Correlation |
| Aesthetic | 4B | 0.15 | 0.36 | 0.11 | 0.32 | .83 | |
| | 6A | 0.22 | 0.42 | 0.28 | 0.45 | -.81 | |
| | 8A | 0.82 | 0.39 | 0.89 | 0.32 | -1.52 | |
| | 10A | 0.26 | 0.44 | 0.22 | 0.42 | .73 | |
| | 12B | 0.46 | 0.5 | 0.67 | 0.47 | -2.64 | |
| | 13A | 0.51 | 0.5 | 0.53 | 0.5 | -.19 | |
| | Total | 2.43 | 1.00 | 2.69 | 1.03 | -1.83 | 0.96** |
| Harm avoidance | 5A | 0.24 | 0.43 | 0.17 | 0.38 | 1.09 | |
| | 7B | 0.04 | 0.2 | 0.08 | 0.28 | -1.00 | |
| | 8B | 0.18 | 0.39 | 0.11 | 0.32 | 1.52 | |
| | 11B | 0.18 | 0.39 | 0.17 | 0.38 | .23 | |
| | 14A | 0.11 | 0.32 | 0.14 | 0.35 | .53 | |
| | 15A | 0.18 | 0.39 | 0.21 | 0.41 | -.44 | |
| | Total | .93 | 1.20 | 0.88 | 1.26 | 0.31 | 0.69 |
| | | | | Total Correlation | | | 0.96** |

Table 3.2

*Test retest reliability of Writing Motivation Questionnaire (n=70) using both t-test and correlation coefficients*

| Writing Motives | Question No. | Session1 | | Session 2 | | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | t | Correlation |
| Documentation | 1A | 0.16 | 0.37 | 0.17 | 0.38 | -0.24 | |
| | 4A | 0.59 | 0.5 | 0.8 | 0.49 | 0.19 | |
| | 7B | 0.91 | 0.28 | 0.91 | 0.28 | 0 | |
| | 11A | 0.19 | 0.39 | 0.31 | 0.47 | -1.83 | |
| | 14A | 0.91 | 0.28 | 0.89 | 0.32 | 0.53 | |
| | 21A | 0.9 | 0.3 | 0.89 | 0.32 | 0.3 | |
| | Total | 3.66 | .92 | 3.77 | .89 | -0.81 | 0.97 |
| Emotional Expression | 1B | 0.84 | 0.37 | 0.83 | 0.38 | 0.24 | |
| | 3B | 0.2 | 0.4 | 0.4 | 0.49 | -3.02 | |
| | 10A | 0.81 | 0.39 | 0.86 | 0.35 | 0.69 | |
| | 12A | 0.11 | 0.32 | 0.11 | 0.32 | 0 | |
| | 15A | 0.81 | 0.39 | 0.84 | 0.37 | -0.53 | |
| | 16B | 0.56 | 0.5 | 0.64 | 0.48 | -1.29 | |
| | Total | 3.34 | 1.01 | 3.69 | 1.22 | -2.25* | 0.97 |
| Creativity | 2A | 0.9 | 0.3 | 0.9 | 0.3 | 0 | |
| | 8A | 0.73 | 0.45 | 0.84 | 0.37 | -1.82 | |
| | 11B | 0.81 | 0.39 | 0.69 | 0.47 | 1.83 | |
| | 12B | 0.89 | 0.32 | 0.89 | 0.32 | 0 | |
| | 13B | 0.56 | 0.5 | 0.73 | 0.45 | -2.43 | |
| | 17A | 0.84 | 0.37 | 0.83 | 0.38 | 0.26 | |
| | Total | 4.73 | 1.26 | 4.87 | 1.21 | -0.9 | 0.61 |
| Harm Avoidance | 2B | 0.1 | 0.3 | 0.1 | 0.3 | 0 | |
| | 3A | 0.8 | 0.4 | 0.6 | 0.49 | .3.02 | |
| | 6A | 0.19 | 0.39 | 0.16 | 0.37 | 0.5 | |
| | 9A | 0.11 | 0.32 | 0.09 | 0.23 | 1.27 | |
| | 18B | 0.11 | 0.32 | 0.27 | 0.45 | -2.63 | |
| | 21B | 0.1 | 0.3 | 0.11 | 0.32 | -0.3 | |
| | Total | 1.41 | .97 | 1.30 | 1.22 | 0.78 | 0.94 |

Table 3.2 (contd.)

| Domain | Items | First session | | Second session | | | Correlation |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Mean | SD | t-test | |
| Affiliation | 5A | 0.1 | 0.3 | 0.09 | 0.28 | 0.28 | |
| | 6B | 0.81 | 0.39 | 0.84 | 0.37 | -0.5 | |
| | 7A | 0.09 | 0.28 | 0.09 | 0.28 | 0 | |
| | 10B | 0.19 | 0.39 | 0.14 | 0.35 | 0.69 | |
| | 17B | 0.16 | 0.37 | 0.17 | 0.38 | -0.26 | |
| | 20A | 0.77 | 0.42 | 0.67 | 0.47 | 1.72 | |
| | Total | 2.11 | 1.00 | 2.00 | .95 | 0.78 | 0.99 |
| Achievement | 4B | 0.41 | 0.5 | 0.4 | 0.49 | 0.19 | |
| | 5B | 0.9 | 0.3 | 0.91 | 0.28 | -0.28 | |
| | 9B | 0.89 | 0.32 | 0.94 | 0.23 | -1.27 | |
| | 13A | 0.44 | 0.5 | 0.27 | 0.45 | 2.43 | |
| | 16A | 0.44 | 0.5 | 0.36 | 0.48 | 1.29 | |
| | 19B | 0.84 | 0.37 | 0.81 | 0.3 | 0.47 | |
| | Total | 3.93 | 1.05 | 3070 | 1.09 | 1.46 | 0.98 |
| Recognition | 8B | 0.27 | 0.45 | 0.16 | 0.37 | 1.82 | |
| | 14B | 0.09 | 0.28 | 0.11 | 0.32 | 0.53 | |
| | 15B | 0.19 | 0.39 | 0.16 | 0.37 | 0.53 | |
| | 18A | 0.89 | 0.32 | 0.73 | 0.45 | 2.63 | |
| | 19A | 0.16 | 0.37 | 0.19 | 0.39 | -0.47 | |
| | 20B | 0.23 | 0.42 | 0.33 | 0.47 | -1.72 | |
| | Total | 1.81 | 1.23 | 1.67 | 1.24 | 0.9 | 0.96 |
| Total Correlation | | | | | 0.96 | | |

# RESULTS : 4

## CONTENT VALIDITY

### A. Theoretical Consideration

One of the primary requirements of good psychological test is validity - the degree to which a test actually measures whatever it purports to measure. Since the person who draws inferences from a test must determine how well it serves his purposes, the estimation of validity inescapably requires judgment. Depending on the criteria of judgment employed, tests exhibit a number of different kinds of validity.

Content related validity:

It involves the systematic examination of the test content to determine whether it covers a representative sample of the behavior domain to be measured. Content validity is built into a test from the outset through the choice of appropriate items. The preparation of items is preceded by a through and systematic examination of relevant materials as well as by consultation with subject-matter experts. On the basis of such information test specifications are to be drawn up. These specifications show the content areas or topics to be covered, processes to be tested and the relative importance of individual topics and processes. Content validation is applicable mainly to educational achievement test and to certain occupational tests designed for employee selection and classification. Common statistics used for content validity coefficient are item-total correlation coefficient, and t-statistics or chi-square test between the item statistics of high and low groups with respect to total scores.

Criterion related validity :

It indicates the effectiveness of a test in predicting an individual's performance in specified activities. Performance on the test is checked against a criterion, a direct and independent measure of that which the test is designed to predict. The criterion measure against which the test is validated may be obtained at approximately the same time as the test scores or after a stated interval. On the basis of these time relations between criterion and test the 1985 Testing Standards differentiate between predictive and concurrent validation.

Predictive validity :

It means prediction from the test to any criterion situation or in the more limited sense of prediction over a time interval. It describes how closely scores on a test correspond (correlate) with behaviour as measured in other contexts. Students' scores on a test of academic aptitude, for example, may be compared with their school grades (a commonly used criterion). To the degree that the two measures statistically correspond, the test empirically predicts the criterion of performance in school. Predictive validity has its most important application in aptitude testing (*e.g.,* in screening applicants for work, in academic placement, in assigning military personnel to different duties).

Concurrent validity : It is frequently impracticable to extend validation procedures over the time required for predictive validation. As a compromise solution, therefore, tests are administered to a group on whom criterion data are already available. A number of criteria may be used in educational researches such as academic achievement, performance in specialized training, job performance etc. Statistics used for criterion related validation are correlation between test score and scores of criterion.

Construct related validity- It measures the extent to which the test may be said to measure a theoretical construct or trait such as scholastic aptitude, mechanical comprehension, verbal fluency, neuroticism, anxiety etc. Each construct is developed to explain and organize observed response consistencies. It derives from established inter relationships among behavioral measures. High correlation coefficient between a new test and similar earlier tests demonstrates that the new test is relatively free from the influence of certain irrelevant factors. However, factor analysis, as a means of identifying psychological traits is, particularly relevant to construct validation.

A test exhibits construct validity when low scorers and high scorers are found to respond differently to everyday experiences or to experimental procedures. A test presumed to measure anxiety, for example, would give evidence of construct validity if those with high scores (“high anxiety”) can be shown to learn less efficiently than do those with lower

scores. The rationale is that there are several propositions associated with the concept of anxiety: anxious people are likely to learn less efficiently, especially if uncertain about their capacity to learn; they are likely to overlook things they should attend to in carrying out a task; they are apt to be under strain and hence feel fatigued. (But anxious people may be young or old, intelligent or unintelligent.) If people with high scores on a test of anxiety show such proposed signs of anxiety, that is, if a test of anxiety has the expected relationships with other measurements as given in these propositions, the test is viewed as having construct validity.

## B: METHODS

Sample :

Final questionnaires were administered to 535 students of class III and IV of private and Government affiliated schools. Of them 516 students (96%) gave complete answers. Final data analysis was based on data of 516 students. Of 516 students, 259 (115 boys and 144 girls ) students were in grade III and 257 students (116 boys and 141 girls ) were in grade IV. The mean age for students of grade III was 8.76 with SD of 0.79 years. The mean age for students of grade IV was 9.73 with SD of 0.65 years.

Instruments.

Reading Motivation Questionnaire

Writing Motivation Questionnaire

## C: RESULTS

Content validity of Reading Motivation Questionnaire

Table 4.1 shows that item – total correlation coefficients (Range = 0.31 to 0.57, Mean = 0.45, SD = 0.06) for all the items were significant at 0.01 level suggesting good discriminating power of items and content validity of the questionnaire.

Content validity of Writing Motivation Questionnaire

Table 4.2 shows that item – total correlation coefficients (Range = 0.15 to 0.66, Mean = 0.46, SD = 0.11) for all the items were significant at 0.01 level suggesting good discriminating power of items and content validity of the questionnaire.

Table 4.1
*Item – dimension correlation coefficients of Reading Motivation Questionnaire (N = 516)*

| Dimensions | Item no. | Correlation coefficients | Dimensions | Item no. | Correlation coefficients |
|---|---|---|---|---|---|
| Application | 1a | 0.44 | Achievement | 3b | 0.54 |
| | 6b | 0.47 | | 10b | 0.48 |
| | 7a | 0.41 | | 11a | 0.43 |
| | 9b | 0.53 | | 16a | 0.39 |
| | 17a | 0.48 | | 17b | 0.41 |
| | 21a | 0.48 | | 20a | 0.51 |
| Knowledge | 1b | 0.37 | Aesthetic | 4b | 0.41 |
| | 2a | 0.48 | | 6a | 0.47 |
| | 4a | 0.50 | | 8a | 0.43 |
| | 14b | 0.48 | | 10a | 0.48 |
| | 16b | 0.45 | | 12b | 0.51 |
| | 19a | 0.49 | | 13a | 0.39 |
| Affiliation | 2b | 0.37 | Harm avoidance | 5a | 0.51 |
| | 13b | 0.51 | | 7b | 0.34 |
| | 15b | 0.33 | | 8b | 0.49 |
| | 18a | 0.38 | | 11b | 0.57 |
| | 20b | 0.56 | | 14a | 0.49 |
| | 21b | 0.45 | | 15a | 0.43 |
| Recognition | 3a | 0.51 | | | |
| | 5b | 0.31 | | | |
| | 9a | 0.52 | | | |
| | 12a | 0.44 | | | |
| | 18b | 0.41 | | | |
| | 19b | 0.47 | | | |

Note: All correlation coefficients were significant at 0.01 level.

Table 4.2
*Item – dimension correlation coefficients of Writing Motivation Questionnaire (N = 500)*

| Dimensions | Items No. | Correlation Coefficients | Dimensions | Items No. | Correlation Coefficients |
|---|---|---|---|---|---|
| Documentation | 1a | .30 | Affiliation | 5a | .52 |
| | 4a | .49 | | 6b | .40 |
| | 7b | .46 | | 7a | .50 |
| | 11a | .30 | | 10b | .51 |
| | 14a | .55 | | 17b | .47 |
| | 21a | .54 | | 20a | .28 |
| Emotional expression | 1b | .34 | Achievement | 4b | .43 |
| | 3b | .39 | | 5b | .38 |
| | 10a | .53 | | 9b | .38 |
| | 12a | .15 | | 13a | .46 |
| | 15a | .59 | | 16a | .54 |
| | 16b | .56 | | 19b | .34 |
| Creativity | 2a | .47 | Recognition | 8b | .60 |
| | 8a | .57 | | 14b | .61 |
| | 11b | .43 | | 15b | .66 |
| | 12b | .46 | | 18a | .19 |
| | 13b | .51 | | 19a | .51 |
| | 17a | .57 | | 20b | .58 |
| Harm avoidance | 2b | .40 | | | |
| | 3a | .36 | | | |
| | 6a | .55 | | | |
| | 9a | .44 | | | |
| | 18b | .55 | | | |
| | 21b | .54 | | | |

Note: All correlation coefficients were significant at 0.01 level.

# RESULTS : 5

## CORRELATING READING AND WRITING MOTIVATION WITH ACADEMIC ACHIEVEMENT

### A: Theoretical Consideration

Correlating Reading and Writing motivation with academic achievement is important for estimation of predictive validity of the questionnaire and for development of theory. Predictive validity means prediction from the test to any criterion situation or in the more limited sense of prediction over a time interval. It describes how closely scores on a test correspond (correlate) with behavior as measured in other contexts. Motivation to reading and writing is assumed to be related to academic achievement. Therefore, an attempt was made to correlate reading and writing motivation scores to academic achievement or school examination marks in order to test predictive validity of both questionnaires.

### B: METHODS

Sample
Data were collected from 200 students of classes III (50 boys and 50 girls) and IV (50 boys and 50 girls) . Their first language was Bengali and second language was English. They just started letter recognition in case of Second language but they could read and write stories with simple sentences in first language. In arithmetic, they could solve problem sums with simple sentences. Their last examination marks in different subjects were obtained for assessment of academic achievement.

Instruments:
Reading Motivation Questionnaire
Writing Motivation Questionnaire

### C: RESULTS

Reading Motivation and Academic achievement
Since there was no significant difference (Table 5.1) in reading motivation variables between students of grades III and IV, pooled data (N=200) were used for correlating reading motivation variables with academic achievement (Table 5.2). Excepting aesthetic motivation variable, all other reading motivation variables were significantly related to

examination marks in Bengali. Results in arithmetic were significantly related to application ($r(198) = 0.34$, $p<0.01$), harm avoidance ($r(198) = -0.32$, $p<0.01$), recognition ($r(198) = -0.23$, $p<0.01$), achievement ($r(198) = 0.19$, $p<0.01$) motivation variables . Total score in the examination was significantly related to harm avoidance ($r(198) = -0.30$, $p<0.01$), application ($r(198) = 0.22$, $p<0.01$), achievement ($r(198) = 0.17$, $p<0.05$)and knowledge ($r(198) = 0.15$, $p<0.05$).

In together, reading motivation variables were more related to marks in Bengali ($R(7,192) = 0.46$, $p<0.0000001$) than to Arithmetic ($R(7,192) = 0.45$, $p<0.0000001$) and total score ($R(7,192) = 0.37$, $p<0.0002$). No significant ($R(7,192) = 0.23$, $p<0.15$) relationship between reading motivation variables and examination marks in English was noted. This suggests differential prediction of reading motivation variables in predicting achievement in different school subjects.

Writing Motivation and Academic achievement

Since there was no significant difference (Table 5.3) in writing motivation variables between students of grades III and IV, pooled data (N=200) were used for correlating writing motivation variables with academic achievement (Table 5.4). Excepting achievement motivation variable, all other writing motivation variables were significantly related to examination marks in Bengali. No writing motivation variables were significantly related to examination marks in English. For arithmetic achievement creativity ($r(198)=0.29$, $p<0.01$), harm avoidance ($r(198)=-0.23$, $p<0.01$), recognition ($r(198)=-0.25$, $p<0.01$), emotional expression ($r(198)=0.16$, $p<0.05$) were significantly related.

In together writing motivation variables were more related to achievement in Bengali ($R=0.46$, $F(7,192)=7.56$, $p< 0.0000001$) than that in Arithmetic ($R=0.45$, $F(7,192)=6.80$, $p<0.0000001$).

Table 5.1
*Significant difference between class III and IV in reading motivation variables*

| | Class III (n=100) | | Class IV (n=100) | | Total (n=200) | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | F(df=1,198) | Sig |
| Application | 4.31 | 1.21 | 4.31 | 1.23 | 4.31 | 1.22 | 0.64 | 0.43 |
| Knowledge | 3.94 | 1.16 | 4.24 | 1.12 | 4.09 | 1.15 | 1.12 | 0.29 |
| Affiliation | 2.33 | 1.21 | 2.18 | 1.11 | 2.25 | 1.16 | 0.93 | 0.34 |
| Recognition | 5.47 | 1.55 | 5.2 | 1.75 | 5.33 | 1.65 | 0.06 | 0.81 |
| Achievement | 3.75 | 1.3 | 3.84 | 1.33 | 3.79 | 1.31 | 2.16 | 0.14 |
| Aesthetic | 2.75 | 1.25 | 2.7 | 1.4 | 2.73 | 1.32 | 0.16 | 0.69 |
| Harm Avoidance | 1.17 | 0.99 | 1.13 | 1.11 | 1.15 | 1.05 | 0.87 | 0.35 |

Table 5.2
*Inter correlation matrix of reading motivation variables (n=200)*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dependent Variables | | | | | | | | | | | |
| 1.Bengali | 1.00 | | | | | | | | | | |
| 2.Arithmetic | 0.79** | 1.00 | | | | | | | | | |
| 3.English | 0.22** | 0.28** | 1.00 | | | | | | | | |
| 4.Total | 0.83** | 0.88** | 0.65** | 1.00 | | | | | | | |
| Independent Variables | | | | | | | | | | | |
| 5.Application | 0.32** | 0.34** | -0.13 | 0.22** | 1.00 | | | | | | |
| 6.Knowledge | 0.22** | 0.11 | 0.03 | 0.15* | 0.13 | 1.00 | | | | | |
| 7.Affiliation | -0.15* | -0.13 | 0.06 | -0.09 | -0.27** | -0.36** | 1.00 | | | | |
| 8.Recognition | -0.27** | -0.23** | 0.15* | -0.14 | -0.42** | -0.28** | 0.22** | 1.00 | | | |
| 9.Achievement | 0.19** | 0.19** | 0.03 | 0.17* | 0.01 | -0.05 | -0.34** | -0.27** | 1.00 | | |
| 10.Aesthetic | -0.04 | -0.03 | 0.03 | -0.02 | -0.25** | -0.07 | -0.21** | -0.01 | -0.29** | 1.00 | |
| 11.Harm avoidance | -0.34** | -0.32** | -0.07 | -0.30** | -0.29** | -0.35** | 0.04 | 0.12 | -0.21** | -0.11 | 1.00 |

Table 5.3
*Significant difference between class III and IV in writing motivation variables*

| Writing Motivation variables | | Class III (n=100) | Class IV (n=100) | Total (n=200) | F (df= 1, 198) | Sig |
|---|---|---|---|---|---|---|
| Documentation | Means | 3.39 | 3.52 | 3.46 | 0.64 | 0.43 |
| | SD. | 1.25 | 1.05 | 1.15 | | |
| Emotional Expression | Means | 3.25 | 3.08 | 3.17 | 1.12 | 0.29 |
| | SD. | 1.20 | 1.07 | 1.14 | | |
| Creativity | Means | 4.35 | 4.53 | 4.44 | 0.93 | 0.34 |
| | SD. | 1.22 | 1.41 | 1.32 | | |
| Harm Avoidance | Means | 1.75 | 1.71 | 1.73 | 0.06 | 0.81 |
| | SD. | 1.19 | 1.13 | 1.16 | | |
| Affiliation | Means | 2.38 | 2.17 | 2.28 | 2.16 | 0.14 |
| | SD. | 1.01 | 1.01 | 1.01 | | |
| Achievement | Means | 3.96 | 3.90 | 3.93 | 0.16 | 0.69 |
| | SD. | 1.10 | 1.04 | 1.07 | | |
| Recognition | Means | 1.92 | 2.09 | 2.01 | 0.87 | 0.35 |
| | SD. | 1.35 | 1.22 | 1.29 | | |

Table 5.4
*Inter correlation matrix (n=200)*

| Writing Motivation variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Documentation | 1.00 | | | | | | | | | | |
| 2.Emotional Expression | 0.13 | 1.00 | | | | | | | | | |
| 3.Creativity | 0.15* | 0.16* | 1.00 | | | | | | | | |
| 4.Harm Avoidance | -0.42** | -0.31** | -0.26** | 1.00 | | | | | | | |
| 5.Affiliation | -0.33** | -0.35** | -0.51** | 0.04 | 1.00 | | | | | | |
| 6.Achievement | -0.14* | -0.27** | -0.16* | -0.19** | 0.02 | 1.00 | | | | | |
| 7.Recognition | -0.40** | -0.39** | -0.52** | 0.15* | 0.29** | -0.15* | 1.00 | | | | |
| Dependent Variable | | | | | | | | | | | |
| 8.Bengali | 0.18** | 0.16* | 0.37** | -0.27** | -0.20** | 0.04 | -0.31** | 1.00 | | | |
| 9.Arithmetic | 0.04 | 0.16* | 0.29** | -0.23** | -0.11 | 0.08 | -0.25** | 0.79** | 1.00 | | |
| 10.English | -0.07 | 0.10 | 0.04 | 0.00 | 0.02 | -0.10 | -0.01 | 0.22** | 0.28** | 1.00 | |
| 11.Total | 0.05 | 0.18** | 0.29** | -0.20** | -0.11 | 0.01 | -0.23** | 0.83** | 0.88** | 0.65** | 1.00 |

# RESULTS : 6

## STEPWISE REGRESSION ANALYSIS

### A: Theoretical Consideration

In earlier chapter relationship of academic achievement with reading and writing motivation variables was investigated to determine predictive validity of the questionnaires. But in this chapter, attempt was made to determine hierarchical prediction of reading and writing motivation variables in predicting academic achievement of students. Stepwise regression analysis is an useful statistical tool to determine hierarchical prediction by identifying strong predictors in predicting dependent or criterion variables.

Stepwise regression analysis:
Stepwise regression analysis allows to examine the contribution of each predictor variable to the regression model using three modes of estimation – backward, forward, and all possible subset regression.

Backward Elimination
Backward elimination is largely a trial and error procedure for finding the best regression estimates. It involves computing a regression equation with all of the variables and then going back and deleting those independent variables that do not contribute significantly to it. The steps are as follows:

1.Compute a single regression equation using all of the predictor variables that interest the experimenter.
2. Calculate a partial F test for each variable as if it were to be used after the variance accounted for by all other predictor variables is removed.
3. Eliminate those predictor variables with a partial F value that indicates that they are not making a significant contribution.
4. After eliminating variables , reestimate the regression model using only the remaining predictor variables .

5. Return to step 2 and continue the process until all variables of interest are identified and their contributions are determined.

Forward estimation

It follows following steps:

1.Start with the single regression model in which only the one predictor most highly correlated with the criterion variable is used. The equation would be Y=a+b1x1.

2. Examine the partial correlation coefficients to find an additional predictor variable that explains both a significant portion and the largest portion of the error remaining from the first regression equation.

3. Recompute the regression equation using the two predictor variables , and examine the partial F value for the original variable in the model to see if it still makes a significant contribution, given the presence of the new predictor variable. If the original variable still makes a significant contribution, the equation would be Y = a + b1x1 + b2x2

4. Continue the procedure by examining all predictors not in the model to determine if one should be included in the model. If a new predictor is included, examine all predictors previously in the model to judge if they should be kept.

All possible subsets Regression

All possible single variable, two variable, three variable and other models are examined. But this approach is prohibitive due to excessive computer cost.

## B: RESULTS

Prediction by Reading Motivation variables

Hierarchical forward estimation was followed in order to identify the set of strong reading and writing motivation variables in predicting academic achievement. Table 6.1 shows differential prediction of reading motivation variables in predicting achievement in first (Bengali) and second language (English). Second language achievement was predicted by recognition motivation variable on the other hand first language achievement was predicted by three motivation variables namely,

harm avoidance, application and recognition motivation variables .For arithmetic achievement application, harm avoidance and achievement motivation variables were found as strong predictors. Finally, result shows that academic achievement irrespective of subject wise variation was strongly predicted by harm avoidance and application motivation variables . Harm avoidance was negatively related to academic achievement (Table 5.2). This suggests that students possessed high scores in the examination in first language and arithmetic preferred application and achievement motive more to harm avoidance and recognition. On the hand, students who gave importance on recognition possessed high score in the second language.

Prediction by Writing Motivation variables

Like reading motivation variables , writing motivation variables were differentially related to subject wise academic achievement scores (Table 6.2). For first language achievement, creativity, harm avoidance and recognition were identified as strong predictors. In together they accounted for 19% variance ($R2=0.19$, $F(3,196)=14.93$, $p<0.00001$) of first language achievement score. On the other hand creativity, harm avoidance, recognition and documentation were identified as strong predictors. In together they accounted for 14% variance ($R2=0.14$, $F(4,195)=7.84$, $p<0.00001$) of arithmetic achievement score. Writing motivation variables in together failed to predict achievement in second language.

But finally in predicting academic achievement irrespective of subject wise variation, it was noted that only creativity, emotional expression and harm avoidance were able to predict $R2=0.11$, $F(3,196)=8.13$, $p<0.00004$). This indicates that students possessed high score in the examination of first language and arithmetic wanted to write for creative expression rather by harm avoidance and recognition.

Table 6.1

*Step wise multiple regression of Reading motivation variables in prediction to Academic achievement*

| Step No. | Reading Motivation variables | R | $R^2$ | $\triangle R^2$ | F | df | P |
|---|---|---|---|---|---|---|---|
| | Prediction to First language achievement | | | | | | |
| 1 | Harm avoidance | 0.34 | 0.12 | 0.12 | 25.96 | 1,198 | 0.00 |
| 2 | Application | 0.41 | 0.17 | 0.05 | 12.94 | 2,197 | 0.00 |
| 3 | Recognition | 0.44 | 0.19 | 0.02 | 5.25 | 3,196 | 0.02 |
| 4 | Achievement | 0.45 | 0.20 | 0.01 | 2.20 | 4,195 | 0.14 |
| 5 | Knowledge | 0.46 | 0.21 | 0.01 | 2.12 | 5,194 | 0.15 |
| | Prediction to Arithmetic achievement | | | | | | |
| 1 | Application | 0.34 | 0.11 | 0.11 | 25.58 | 1,198 | 0.00 |
| 2 | Harm avoidance | 0.41 | 0.17 | 0.05 | 13.00 | 2,197 | 0.00 |
| 3 | Achievement | 0.43 | 0.19 | 0.02 | 4.70 | 3,196 | 0.03 |
| 4 | Aesthetic | 0.44 | 0.19 | 0.00 | 1.05 | 4,195 | 0.31 |
| | Prediction to English score achievement | | | | | | |
| 1 | Recognition | 0.15 | 0.02 | 0.02 | 4.68 | 1,198 | 0.03 |
| 2 | Harm avoidance | 0.17 | 0.03 | 0.01 | 1.48 | 2,197 | 0.23 |
| 3 | Application | 0.20 | 0.04 | 0.01 | 2.24 | 3,196 | 0.14 |
| | Prediction to Total Score | | | | | | |
| 1 | Harm avoidance | 0.30 | 0.09 | 0.09 | 20.13 | 1,198 | 0.00 |
| 2 | Application | 0.33 | 0.11 | 0.02 | 3.97 | 2,197 | 0.05 |
| 3 | Achievement | 0.35 | 0.12 | 0.01 | 3.03 | 3,196 | 0.08 |

Table 6.2

*Step wise multiple regression Writing motivation variables in prediction to academic achievement*

| Step Writing Motivation variables | R | $R^2$ | F | Df | P | $\triangle R^2$ | $\triangle F$ | P |
|---|---|---|---|---|---|---|---|---|
| Prediction to First language achievement | | | | | | | | |
| 1. Creativity | 0.37 | 0.13 | 30.89 | 1,198 | 0.00001 | 0.13 | 30.89 | 0.000 |
| 2. Harm avoidance | 0.41 | 0.17 | 19.61 | 2,197 | 0.00001 | 0.03 | 7.34 | 0.007 |
| 3. Recognition | 0.43 | 0.19 | 14.93 | 3,196 | 0.00001 | 0.02 | 4.82 | 0.029 |
| Prediction to Arithmetic achievement | | | | | | | | |
| 1. Creativity | 0.29 | 0.08 | 18.44 | 1,198 | 0.00001 | 0.08 | 18.44 | 0.000 |
| 2. Harm avoidance | 0.33 | 0.1 | 12.17 | 2,197 | 0.00001 | 0.02 | 5.48 | 0.020 |
| 3. Recognition | 0.34 | 0.12 | 9.09 | 3,196 | 0.00001 | 0.01 | 2.72 | 0.100 |
| 4. Documentation | 0.37 | 0.14 | 7.84 | 4,195 | 0.00001 | 0.02 | 3.72 | 0.050 |
| Prediction to total score achievement | | | | | | | | |
| 1.Creativity | 0.29 | 0.08 | 18.1 | 1,198 | 0.00003 | 0.084 | 18.1 | 0.050 |
| 2.Emotional expression | 0.32 | 0.1 | 11.11 | 2,197 | 0.00002 | 0.017 | 3.86 | 0.050 |
| 3.Harm avoidance | 0.33 | 0.11 | 8.13 | 3,196 | 0.00004 | 0.009 | 2.06 | 0.150 |
| Prediction to English achievement | | | | | | | | |
| R =0.15 R2 = 0.02 F = 1.61 NS | | | | | | | | |

# RESULT : 7

## MULTIVARIATE ANALYSIS OF VARIANCE (MANOVA)

### A: Theoretical Consideration

Multivariate analysis of variance (MANOVA) is concerned with differences between groups or experimental treatments on a multiple metric dependent variables simultaneously. MANOVA is useful when the dependent variables are correlated. On the other hand analysis of variance (ANOVA) is to assess group differences on a single metric dependent variable. ANOVA ignores the possibility that some composite of the dependent variables may provide reliable evidence of overall group differences, whereas MANOVA solves composite variable problem by implicitly testing the linear combination of the dependent variables that provides the strongest evidence of overall group differences. Since it was noted that reading and writing motivation variables are related, the main and interaction effects of school types and gender will be determined using MANOVA. Significance level of MANOVA is tested by Wilks' Lambda and Rao's R.

Wilks' Lambda:
Wilks lambda assumes values in the range of 0 (perfect discrimination) to 1 (no discrimination).

F-value
F- value is calculated using Rao's R. Rao's R is a transformed value of Wilks' lambda which is used to determine the significance of the given effect.

### Methods

Sample
Sampling was done in two stages- (a) selection of sample schools from from four school types- Government, Government aided, corporation and Missionary schools under the West Bengal Board of Primary Education (b) selection of sample students.

For selection of sample schools lists of government, Government aided, Kolkata corporation and Missionary schools were collected from different sources -Calcutta District

Primary School Council, Calcutta Municipal Corporation and Police stations of different areas. Data were collected from 3 Government schools, 5 schools financially aided by the Government of West Bengal, 7 schools of Kolkata corporation and 3 missionary schools under the West Bengal Board of Primary Education. In sampling, attention was paid to the equal representation of schools across north, south, east, west and central Kolkata.

Finally data were collected from 234 students of Government, 230 of Government aided, 202 of corporation and 215 of Missionary schools. Sampling distribution was given in Table 7.1. Thus simple stratified random sampling was followed in sampling the students from 4 strata - 5 zones of kolkata (North, South, Central, East, and West) X 4 school types ( Government, Government-aided, Corporation and Missionary schools) X 2 grades (grades III and IV) X 2 genders (boy and girl). Tables 7.2 and 7.3 represent Distribution of Religion, Caste, total number of family members, ordinal position and study hours of students and their parents' educational and occupational status.

## B: Results

### Main and interaction effect on Reading Motivation

A MANOVA applying school type and gender as independent variables noted that school types (Wilks' Lamda =0.71, $F(21, 2550)= 15.23$, $p<0.0001$) and interaction effects of school types and genders (Wilk's Lamda =0.87, $F (21, 2550)= 6.18$, $p<0.0001$) had significant influence on reading motivation. Relatively less significant (Wilks' Lamda =0.98, $F (7, 888)= 3.25$, $p<0.002$) effect of gender on reading motivation was noted (Figure 7.2). Table 7.4 shows that the four types of schools differed significantly more on knowledge ($F(3, 894)=15.86$, $p<0.0001$), recognition ($F(3, 894)=32.63$, $p<0.0001$), application ($F(3, 894)=20.24$, $p<0.0001$) and harm avoidance ($F(3, 894)=26.64$, $p<0.0001$)than affiliation ($F(3, 894)=9.44$, $p<0.0001$), aesthetic ($F(3, 894)=4.98$, $p<0.002$) and achievement ($F(3, 894)=6.75$, $p<0.0001$).Figure 7.1 shows that students in corporation schools were guided by the extrinsic reading motivation variables(recognition, affiliation and harm avoidance) and students in other schools were guided by the intrinsic reading motivation variables (achievement, application and knowledge). Figure 7.3 to 7.9 represent interaction effect of school types and gender on different reading motivation variables In the Govt. schools, girls

preferred application, recognition and achievement motivation variables than boys. On the other hand, boys preferred knowledge, application and harm avoidance than girls in the Govt. schools. But in the Govt. aided schools, girls preferred knowledge and aesthetic motivation variable and boys preferred affiliation, achievement, recognition and harm avoidance than their counter parts. In the corporation schools, girls gave more importance on application, knowledge and aesthetic motivation variables and boys on affiliation, recognition and harm avoidance. In the Missionary schools, girls preferred affiliation, achievement and recognition than boys. In reverse, boys preferred more application, aesthetic and harm avoidance than girls.

Main and interaction effect on Writing Motivation

MANOVA using school types and gender as independent variables noted significant differences (Figure 7.10 ) in writing motivation across school types (Wilks' Lambda = 0.61, $F(21,2498) = 22.17$, $p<0.0001$) and across school types and gender (Wilks' Lambda = 0.94, $F(21,2498) = 2.70$, $p<0.0001$). No significant effect of gender (Wilks' Lambda = 0.99, $F(7,870) = 1.54$, ns) on writing motivation was noted. This supports the basic assumption that boys and girls are differentially treated across schools for writing motivation. Results (Figure 7.11 to 7.17) show more significant effects of school types on harm avoidance ($F(3,876) = 88.79$, $p<0.0001$) , creativity($F(3,876) = 67.14$, $p<0.0001$) , recognition ($F(3,876) = 38.32$, $p<0.0001$) than achievement ($F(3,876) = 30.76$, $p<0.0001$) , documentation ($F(3,876) = 30.21$, $p<0.0001$) , affiliation ($F(3,876) = 29.15$, $p<0.0001$ and emotional expression ($F(3,876) = 16.90$, $p<0.0001$). Students in corporation schools preferred harm avoidance (Mean = 2.83, SD = 1.28 ), affiliation (Mean = 3.00, SD = 1.20 ), and recognition (Mean = 3.08, SD = 1.14 ), to other variables of writing motivation. On the other hand, students in other types of schools preferred intrinsic variables of writing motivation like creativity, documentation, achievement and emotional expression,. Specifically, students in Missionary schools preferred creativity (Mean = 4.91, SD = 1.14 ), emotional expression (Mean = 3.73, SD = 1.1 ), documentation (Mean = 4.1, SD = 0.70 ) more to other motives. Students in Govt. Aided schools motivated to write by achievement (Mean = 4.02, SD = 1.16), documentation (Mean = 3.82, SD = 1.1 ), creativity (Mean = 4.22, SD = 1.33 ) than emotional expression (Mean = 3.1, SD = 1.17 ).

Girls of Government and Govt. aided schools preferred documentation, creativity, and achievement than boys. Again Boys of Government and Govt. aided schools preferred affiliation and recognition than girls. Unlike the Government and Govt. aided schools, boys of Missionary schools gave more importance on documentation, and girls gave more importance on recognition. For corporation schools, excepting creativity, boys and girls preferred equally writing motivation variables. Boys preferred creativity more than the girls.

Table 7.1
*Sampling Distribution*

| | Boys | | | Girls | | | Grand Total |
|---|---|---|---|---|---|---|---|
| | III | IV | Total | III | IV | Total | |
| Government | 42 | 42 | 84 | 70 | 66 | 136 | 220 |
| Govt. Aided | 48 | 78 | 126 | 64 | 65 | 129 | 255 |
| Corporation | 61 | 51 | 112 | 47 | 53 | 100 | 212 |
| Missionary | 75 | 90 | 165 | 25 | 25 | 50 | 215 |
| Total | 226 | 261 | 487 | 206 | 209 | 415 | 902 |

Table 7.2
Distribution of Religion, Caste, total number of family members, ordinal position and study hours of students (N=992)

| **Religion** | | **Caste** | | **Study Hours** | |
|---|---|---|---|---|---|
| Hindu | 92.14 | General | 92% | >6 | 25% |
| Muslim | 1.92 | Others | 1% | 5 to 6 | 20% |
| Chiristian | 0.5 | Missing | 7% | 4 to 5 | 15% |
| Missig | 5.44 | | | 3 to 4 | 0.13 |
| **Total number of Family members** | | **Ordinal Position** | | 2 to 3 | 0.17 |
| 2 to 5 | 55% | 1 | 48% | 1 to 2 | 0.04 |
| 6 to 9 | 30% | 2 | 28% | <1 | 1% |
| >9 | 15% | 3 | 10% | Missing | 5% |
| Missing | 15% | 4 | 5% | | |
| | | 5 | 0.01 | | |
| | | 6 | 0.01 | | |
| | | 7 | 0.01 | | |
| | | Missing | 0.07 | | |

| **Subject Preference** | *More preferred* | *More preferred* | *Not preferred* | *Missing* |
|---|---|---|---|---|
| Bengali | 19% | 18% | 16% | 17% |
| Arithmetic | 23% | 10% | 8% | 18% |
| History | 17% | 16% | 33% | 21% |
| Geography | 11% | 22% | 23% | 23% |
| Science | 30% | 34% | 20% | 22% |

Table 7.3
Frequency distribution of educational and occupational status of parents and other guardians of students.

| **Education** | **Mother** | **Father** | **Other Guardians** |
|---|---|---|---|
| Below School Final | 229 | 211 | 16 |
| School Final | 111 | 75 | 9 |
| Higher Secondary | 103 | 106 | 32 |
| Graduation | 239 | 183 | 33 |
| Post Graduation | 156 | 254 | 58 |
| **Occupation** | | | |
| Service | 63 | 395 | 85 |
| Business | 20 | 237 | 59 |
| Manual Labour | 12 | 16 | 13 |
| Household | 527 | 3 | 19 |
| Missing | 99 | 370 | 845 |

Table 7.4

*Analysis of Variance among School types and Gender on Reading Motivation*

| | School Type | Gender | Mean | SD | N | School Types F(DF=3,894) | Significance level | Gender F(DF=1,894) | Significance level | Interaction F(DF=3,894) | Significance level |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | **6** | **7** | 8 | 9 | **10** | **11** |
| Achievement | Government | Boy | 3.36 | 1.09 | 84 | 6.75 | .000 | 2.40 | .122 | 1.78 | .15 |
| | | Girl | 3.65 | 1.11 | 136 | | | | | | |
| | | Total | 3.54 | 1.11 | 220 | | | | | | |
| | Govt. Aided | Boy | 3.76 | 1.22 | 126 | | | | | | |
| | | Girl | 3.64 | 1.31 | 129 | | | | | | |
| | | Total | 3.70 | 1.27 | 255 | | | | | | |
| | Corporation | Boy | 3.54 | 1.23 | 112 | | | | | | |
| | | Girl | 3.55 | 1.37 | 100 | | | | | | |
| | | Total | 3.55 | 1.29 | 212 | | | | | | |
| | Missionary | Boy | 3.86 | 1.28 | 165 | | | | | | |
| | | Girl | 4.22 | 1.00 | 50 | | | | | | |
| | | Total | 3.94 | 1.23 | 215 | | | | | | |
| | Total | Boy | 3.67 | 1.23 | 487 | | | | | | |
| | | Girl | 3.69 | 1.24 | 415 | | | | | | |
| Application | Government | Boy | 4.20 | 1.26 | 84 | 20.24 | 0.000 | 0.91 | 0.34 | 7.02 | 0.000 |
| | | Girl | 4.68 | 1.09 | 136 | | | | | | |
| | | Total | 4.50 | 1.18 | 220 | | | | | | |
| | Govt. Aided | Boy | 4.37 | 1.24 | 126 | | | | | | |
| | | Girl | 4.44 | 1.14 | 129 | | | | | | |
| | | Total | 4.41 | 1.19 | 255 | | | | | | |
| | Corporation | Boy | 3.56 | 1.22 | 112 | | | | | | |
| | | Girl | 3.88 | 1.19 | 100 | | | | | | |
| | | Total | 3.71 | 1.21 | 212 | | | | | | |
| | Missionary | Boy | 4.70 | 0.92 | 165 | | | | | | |
| | | Girl | 4.14 | 0.99 | 50 | | | | | | |
| | | Total | 4.57 | 0.96 | 215 | | | | | | |
| | Total | Boy | 4.26 | 1.21 | 487 | | | | | | |
| | | Girl | 4.35 | 1.16 | 415 | | | | | | |
| Knowledge | Government | Boy | 4.48 | 1.15 | 84 | 45.86 | 0.000 | 0.61 | 0.40 | 2.371 | 0.07 |
| | | Girl | 4.29 | 1.08 | 136 | | | | | | |
| | | Total | 4.36 | 1.11 | 220 | | | | | | |
| | Govt. Aided | Boy | 3.90 | 1.12 | 126 | | | | | | |
| | | Girl | 4.23 | 1.16 | 129 | | | | | | |
| | | Total | 4.07 | 1.15 | 255 | | | | | | |
| | Corporation | Boy | 3.35 | 1.27 | 112 | | | | | | |
| | | Girl | 3.55 | 1.41 | 100 | | | | | | |
| | | Total | 3.44 | 1.34 | 212 | | | | | | |
| | Missionary | Boy | 4.83 | 0.89 | 165 | | | | | | |
| | | Girl | 4.76 | 1.17 | 50 | | | | | | |
| | | Total | 4.81 | 0.96 | 215 | | | | | | |
| | Total | Boy | 4.19 | 1.23 | 487 | | | | | | |
| | | Girl | 4.15 | 1.25 | 415 | | | | | | |

Table 7.4

(Continued)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aesthetic | Government | Boy | 2.62 | 1.25 | 84 | 4.98 | 0.002 | 1.20 | 0.27 | 15.63 | 0.000 |
| | | Girl | 2.64 | 1.11 | 136 | | | | | | |
| | | Total | 2.63 | 1.16 | 220 | | | | | | |
| | Govt. Aided | Boy | 2.48 | 1.29 | 126 | | | | | | |
| | | Girl | 2.94 | 1.2 | 129 | | | | | | |
| | | Total | 2.71 | 1.27 | 255 | | | | | | |
| | Corporation | Boy | 2.17 | 1.16 | 112 | | | | | | |
| | | Girl | 2.45 | 1.26 | 100 | | | | | | |
| | | Total | 2.3 | 1.21 | 212 | | | | | | |
| | Missionary | Boy | 3.01 | 1.1 | 165 | | | | | | |
| | | Girl | 1.88 | 1.29 | 50 | | | | | | |
| | | Total | 2.75 | 1.24 | 215 | | | | | | |
| | Total | Boy | 2.61 | 1.23 | 487 | | | | | | |
| | | Girl | 2.59 | 1.23 | 415 | | | | | | |
| Affiliation | Government | Boy | 2.69 | 1.16 | 84 | 9.44 | 0.000 | 10.17 | .001 | 1.68 | |
| | | Girl | 2.04 | 1.02 | 136 | | | | | | |
| | | Total | 2.29 | 1.12 | 220 | | | | | | |
| | Govt. Aided | Boy | 2.41 | 1.17 | 126 | | | | | | |
| | | Girl | 2.12 | 1.17 | 129 | | | | | | |
| | | Total | 2.27 | 1.17 | 255 | | | | | | |
| | Corporation | Boy | 2.6 | 1.08 | 112 | | | | | | |
| | | Girl | 2.41 | 1.13 | 100 | | | | | | |
| | | Total | 2.51 | 1.1 | 212 | | | | | | |
| | Missionary | Boy | 1.84 | 0.98 | 165 | | | | | | |
| | | Girl | 1.98 | 0.96 | 50 | | | | | | |
| | | Total | 1.87 | 0.98 | 215 | | | | | | |
| Harm Avoid | Government | Boy | 1.65 | 1.06 | 84 | 26.64 | 0.000 | 7.74 | .005 | 8.42 | |
| | | Girl | 1.55 | 1.04 | 136 | | | | | | |
| | | Total | 1.59 | 1.05 | 220 | | | | | | |
| | Govt. Aided | Boy | 1.62 | 0.99 | 126 | | | | | | |
| | | Girl | 1.55 | 0.92 | 129 | | | | | | |
| | | Total | 1.58 | 0.96 | 255 | | | | | | |
| | Corporation | Boy | 2.15 | 1.35 | 112 | | | | | | |
| | | Girl | 2 | 1.38 | 100 | | | | | | |
| | | Total | 2.08 | 1.36 | 212 | | | | | | |
| | Missionary | Boy | 1.34 | 0.73 | 165 | | | | | | |
| | | Girl | 0.84 | 0.79 | 50 | | | | | | |
| | | Total | 1.22 | 0.77 | 215 | | | | | | |
| | Total | Boy | 1.65 | 1.06 | 487 | | | | | | |
| | | Girl | 1.57 | 1.12 | 415 | | | | | | |
| | | Total | 1.62 | 1.09 | 902 | | | | | | |

Table 7.4

(Continued)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Recognition | Government | Boy | 2.57 | 1.38 | 84 | 32.63 | 0.000 | 2.21 | 0.14 | 6.78 | |
| | | Girl | 2.74 | 1.03 | 136 | | | | | | |
| | | Total | 2.67 | 1.18 | 220 | | | | | | |
| | Govt. Aided | Boy | 2.79 | 1.12 | 126 | | | | | | |
| | | Girl | 2.68 | 1.15 | 129 | | | | | | |
| | | Total | 2.73 | 1.13 | 255 | | | | | | |
| | Corporation | Boy | 3.66 | 1.22 | 112 | | | | | | |
| | | Girl | 3.36 | 1.12 | 100 | | | | | | |
| | | Total | 3.52 | 1.18 | 212 | | | | | | |
| | Missionary | Boy | 2.15 | 0.99 | 165 | | | | | | |
| | | Girl | 2.86 | 0.81 | 50 | | | | | | |
| | | Total | 2.32 | 1 | 215 | | | | | | |

Table 7.5

*Analysis of Variance among School types and Gender on Writing Motivation*

| | | Gender | Mean | SD | N | School Types F(3,876) | Significance level | Gender F(1,876) | Significance level | Interaction F(3,876) | Significance level |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Documentation | Government | Boy | 3.74 | 0.97 | 78 | | | | | | |
| | | Girl | 3.92 | 0.84 | 127 | | | | | | |
| | | Total | 3.85 | 0.9 | 205 | | | | | | |
| | Govt.aided | Boy | 3.56 | 1.11 | 124 | | | | | | |
| | | Girl | 4.07 | 1.04 | 128 | | | | | | |
| | | Total | 3.82 | 1.1 | 252 | | | | | | |
| | Corporation | Boy | 3.15 | 1.06 | 112 | | | | | | |
| | | Girl | 3.15 | 1.27 | 100 | | | | | | |
| | | Total | 3.15 | 1.16 | 212 | | | | | | |
| | Missionary | Boy | 4.16 | 0.67 | 165 | | | | | | |
| | | Girl | 3.9 | 0.76 | 50 | | | | | | |
| | | Total | 4.1 | 0.7 | 215 | | | | | | |
| | Total | Boy | 3.7 | 1.02 | 479 | | | | | | |
| | | Girl | 3.78 | 1.08 | 405 | 30.21 | 0.000 | 2.39 | 0.12 | 5.560 | 0.00 |
| Emotional expression | Government | Boy | 3.24 | 1.26 | 78 | | | | | | |
| | | Girl | 3.35 | 1.03 | 127 | | | | | | |
| | | Total | 3.31 | 1.12 | 205 | | | | | | |
| | Govt.aided | Boy | 2.9 | 1.3 | 124 | | | | | | |
| | | Girl | 3.29 | 1 | 128 | | | | | | |
| | | Total | 3.1 | 1.17 | 252 | | | | | | |
| | Corporation | Boy | 2.76 | 1.29 | 112 | | | | | | |
| | | Girl | 2.86 | 1.09 | 100 | | | | | | |
| | | Total | 2.81 | 1.2 | 212 | | | | | | |
| | Missionary | Boy | 3.81 | 1.18 | 165 | | | | | | |
| | | Girl | 3.48 | 0.76 | 50 | | | | | | |
| | | Total | 3.73 | 1.1 | 215 | | | | | | |
| | Total | Boy | 3.24 | 1.32 | 479 | 16.90 | 0.000 | 0.69 | 0.41 | 3.070 | 0.02 |
| | | Girl | 3.23 | 1.03 | 405 | | | | | | |
| Creativity | Government | Boy | 4.36 | 1.27 | 78 | | | | | | |
| | | Girl | 4.75 | 1.24 | 127 | | | | | | |
| | | Total | 4.6 | 1.26 | 205 | | | | | | |
| | Govt.aided | Boy | 3.88 | 1.29 | 124 | | | | | | |
| | | Girl | 4.55 | 1.3 | 128 | | | | | | |
| | | Total | 4.22 | 1.33 | 252 | | | | | | |
| | Corporation | Boy | 3.38 | 1.12 | 112 | | | | | | |
| | | Girl | 3.07 | 1.07 | 100 | | | | | | |
| | | Total | 3.24 | 1.1 | 212 | | | | | | |
| | Missionary | Boy | 4.95 | 1.08 | 165 | | | | | | |
| | | Girl | 4.78 | 1.33 | 50 | | | | | | |
| | | Total | 4.91 | 1.14 | 215 | | | | | | |
| | Total | Boy | 4.21 | 1.32 | 479 | 67.15 | 0.000 | 2.84 | 0.09 | 7.990 | 2.94 |
| | | Girl | 4.27 | 1.41 | 405 | | | | | | |

Table 7.5
(Contd..)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Harm avoidance | Government | Boy | 1.65 | 0.98 | 78 | | | | | |
| | | Girl | 1.48 | 1.02 | 127 | | | | | |
| | | Total | 1.55 | 1.01 | 205 | | | | | |
| | Govt.aided | Boy | 1.97 | 1.16 | 124 | | | | | |
| | | Girl | 1.5 | 1 | 128 | | | | | |
| | | Total | 1.73 | 1.1 | 252 | | | | | |
| | Corporation | Boy | 2.79 | 1.35 | 112 | | | | | |
| | | Girl | 2.87 | 1.21 | 100 | | | | | |
| | | Total | 2.83 | 1.28 | 212 | | | | | |
| | Missionary | Boy | 1.05 | 1.07 | 165 | | | | | |
| | | Girl | 1.04 | 0.64 | 50 | | | | | |
| | | Total | 1.05 | 0.99 | 215 | | | | | |
| | Total | Boy | 1.79 | 1.32 | 479 | 88.79 | 0.000 | 3.33 | 0.07 | 2.760 | 0.04 |
| | | Girl | 1.78 | 1.21 | 405 | | | | | |
| Affiliation | Government | Boy | 2.44 | 1.48 | 78 | | | | | |
| | | Girl | 2.21 | 1 | 127 | | | | | |
| | | Total | 2.3 | 1.21 | 205 | | | | | |
| | Govt.aided | Boy | 2.54 | 1.25 | 124 | | | | | |
| | | Girl | 2.17 | 0.92 | 128 | | | | | |
| | | Total | 2.35 | 1.11 | 252 | | | | | |
| | Corporation | Boy | 3.01 | 1.11 | 112 | | | | | |
| | | Girl | 2.98 | 1.3 | 100 | | | | | |
| | | Total | 3 | 1.2 | 212 | | | | | |
| | Missionary | Boy | 1.9 | 1.11 | 165 | | | | | |
| | | Girl | 1.9 | 0.89 | 50 | | | | | |
| | | Total | 1.9 | 1.06 | 215 | | | | | |
| | Total | Boy | 2.41 | 1.28 | 479 | 29.16 | 0.000 | 3.58 | 0.06 | 1.230 | 0.30 |
| | | Girl | 2.35 | 1.11 | 405 | | | | | |
| Achievement | Government | Boy | 3.69 | 1.25 | 78 | | | | | |
| | | Girl | 3.87 | 1.06 | 127 | | | | | |
| | | Total | 3.8 | 1.14 | 205 | | | | | |
| | Govt.aided | Boy | 4.11 | 1.08 | 124 | | | | | |
| | | Girl | 3.94 | 1.23 | 128 | | | | | |
| | | Total | 4.02 | 1.16 | 252 | | | | | |
| | Corporation | Boy | 3.02 | 1.23 | 112 | | | | | |
| | | Girl | 3.11 | 1.29 | 100 | | | | | |
| | | Total | 3.06 | 1.25 | 212 | | | | | |
| | Missionary | Boy | 3.65 | 0.97 | 165 | | | | | |
| | | Girl | 4.14 | 0.95 | 50 | | | | | |
| | | Total | 3.77 | 0.99 | 215 | | | | | |
| | Total | Boy | 3.63 | 1.17 | 479 | 30.76 | 0.000 | 3.15 | 0.08 | 2.770 | 0.04 |
| | | Girl | 3.74 | 1.22 | 405 | | | | | |

Table 7.5
(Contd.)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Recognition | | | | | | | | | |
| Government | Boy | 2.13 | 1.4 | 78 | | | | | |
| | Girl | 1.8 | 1.25 | 127 | | | | | |
| | Total | 1.92 | 1.31 | 205 | | | | | |
| Govt.aided | Boy | 2.45 | 1.47 | 124 | | | | | |
| | Girl | 1.81 | 1.23 | 128 | | | | | |
| | Total | 2.13 | 1.39 | 252 | | | | | |
| Corporation | Boy | 3.06 | 1.22 | 112 | | | | | |
| | Girl | 3.11 | 1.04 | 100 | | | | | |
| | Total | 3.08 | 1.14 | 212 | | | | | |
| Missionary | Boy | 1.81 | 1.1 | 165 | | | | | |
| | Girl | 2.2 | 0.93 | 50 | | | | | |
| | Total | 1.9 | 1.07 | 215 | | | | | |
| Total | Boy | 2.32 | 1.36 | 479 | 38.32 | 0.000 | 2.29 | 0.13 | 6.580 | 0.00 |
| | Girl | 2.18 | 1.28 | 405 | | | | | |

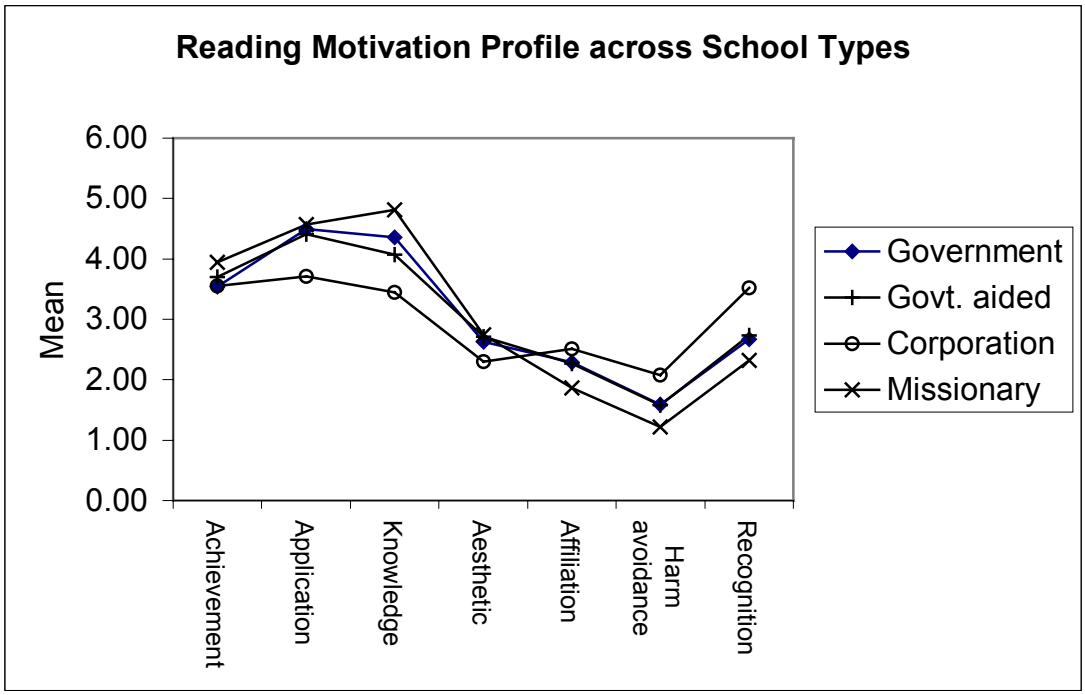


Figure 7.1 Reading Motivation Profile of students in different schools

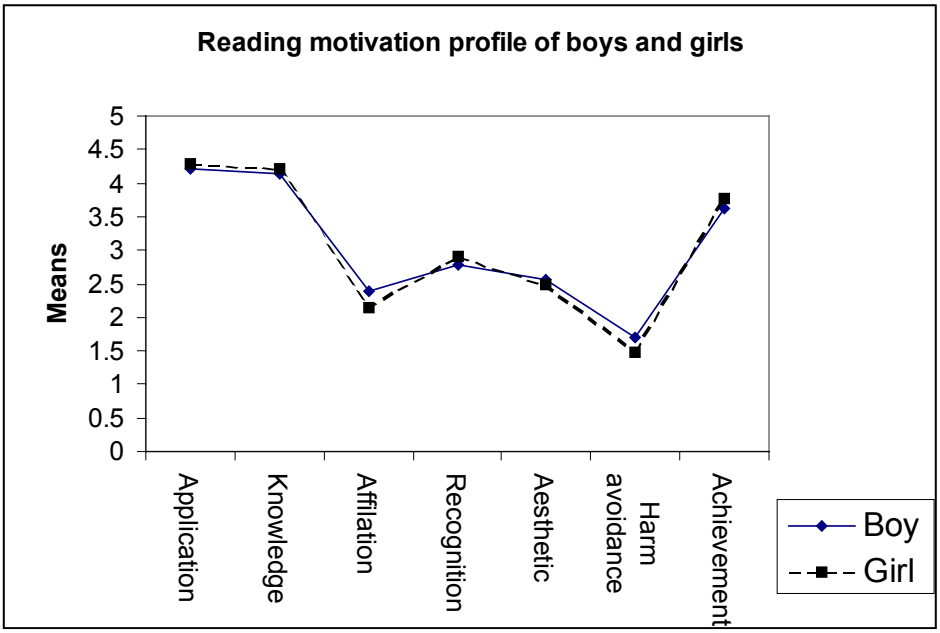


Figure 7.2 Reading Motivation profile of boys and girls irrespective of school types

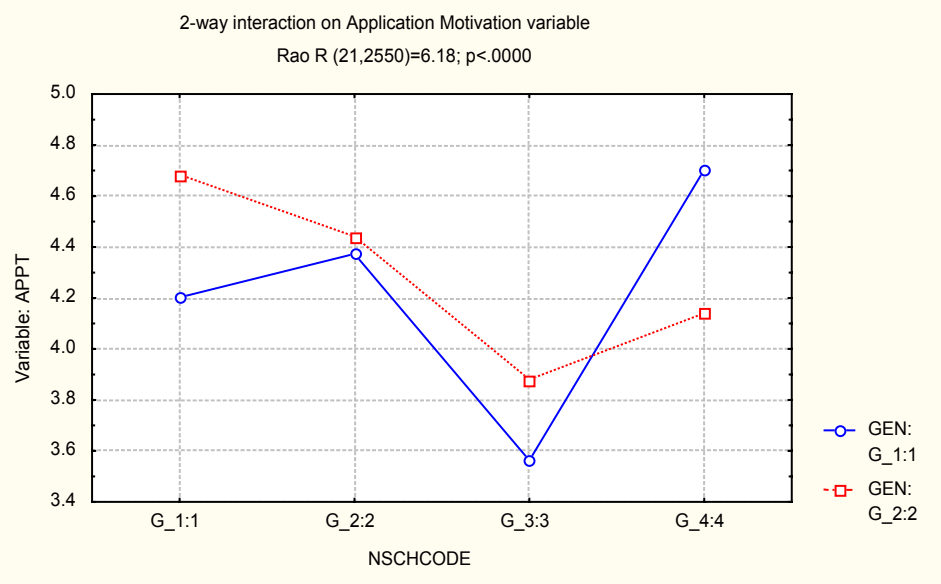


Figure 7.3 Relative preference to Application reading motivation variable by the boys and girls of different schools

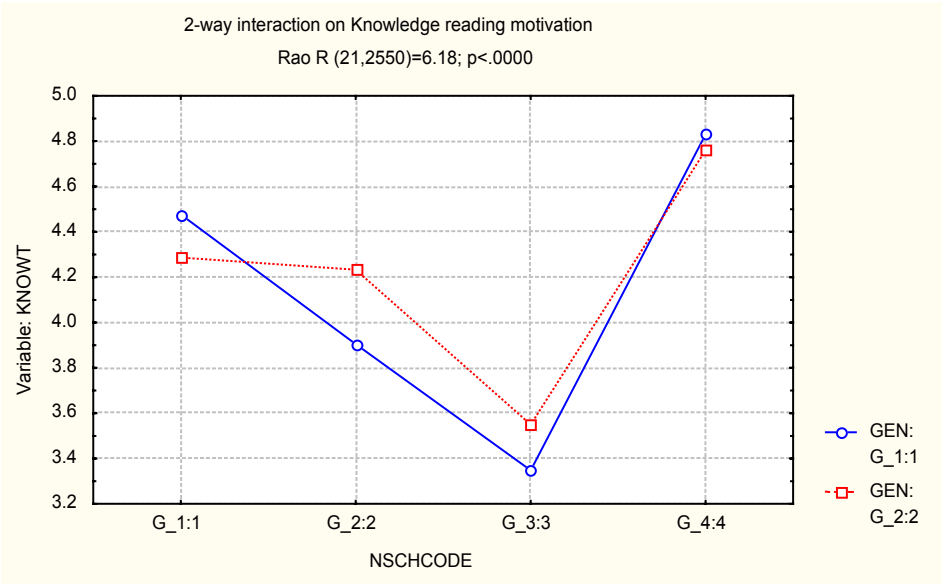


Figure 7.4 Relative preference to Knowledge reading motivation variable by the boys and girls of different schools

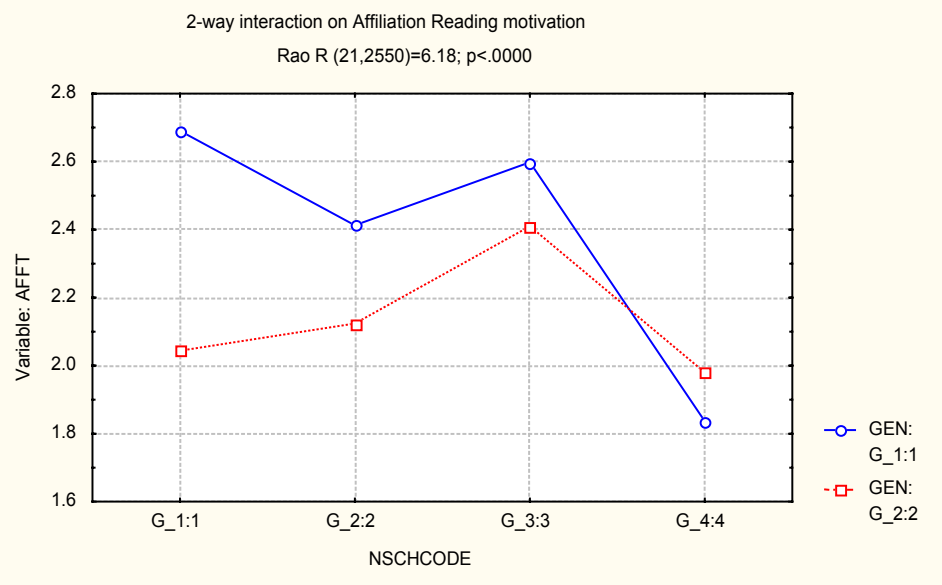


Figure 7.5 Relative preference to Affiliation reading motivation variable by the boys and girls of different schools

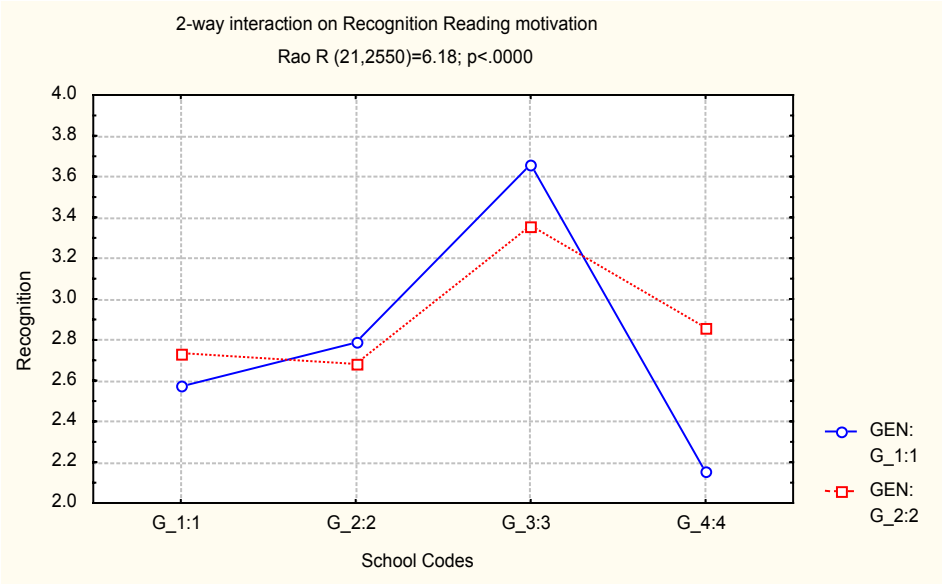


Figure.7.6 Relative preference to Recognition reading motivation variable by the boys and girls of different schools

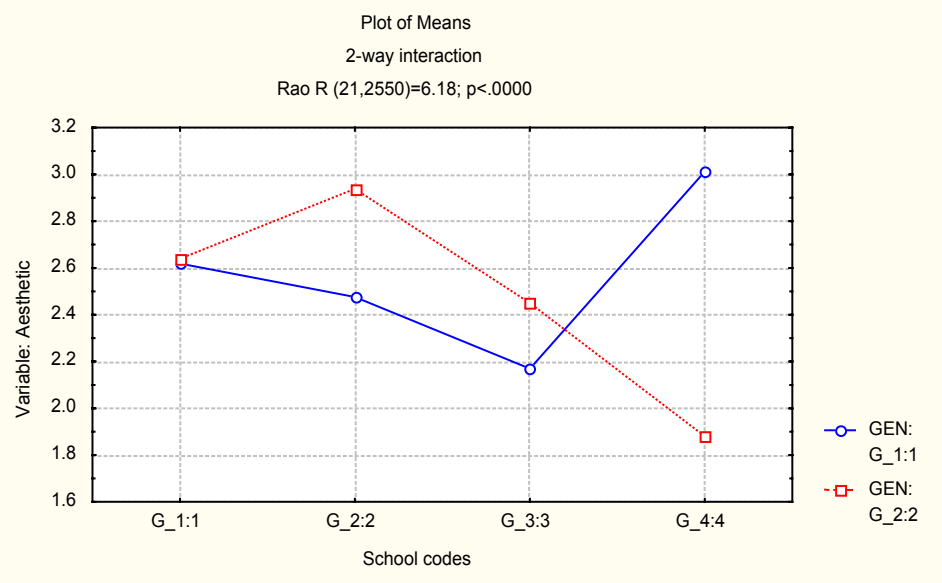


Figure. 7.7 Relative preference to Aesthetic reading motivation variable by the boys and girls of different schools


Figure 7.8 Relative preference to Harm Avoidance reading motivation variable by the boys and girls of different schools

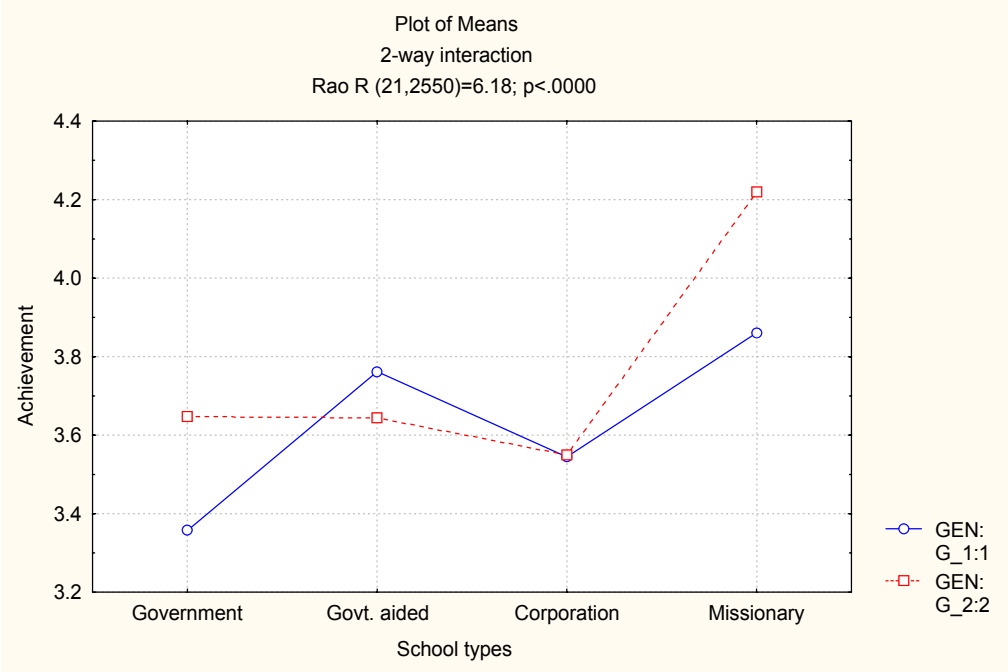


Figure. 7.9 Relative preference to Achievement reading motivation variable by the boys and girls of different schools

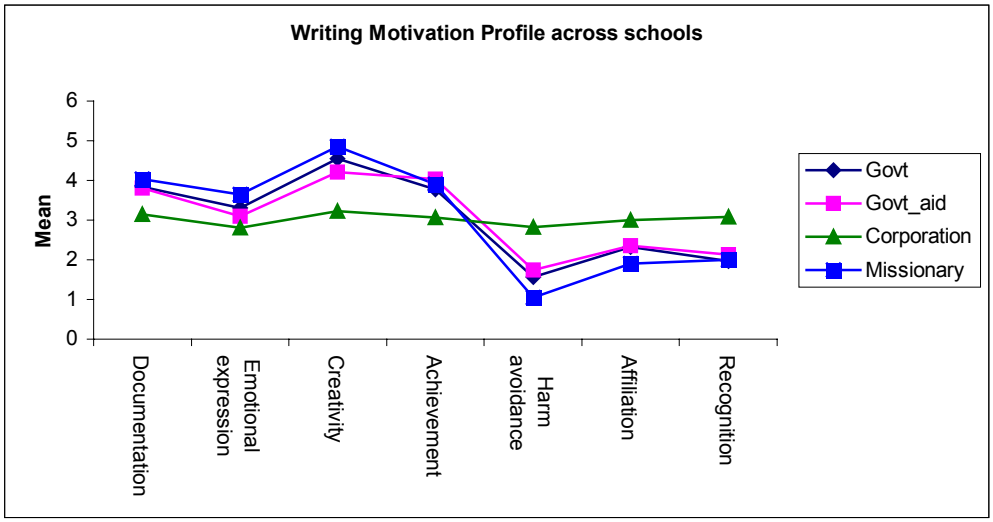


Figure. 7.10 Writing motivation profile of students in different schools

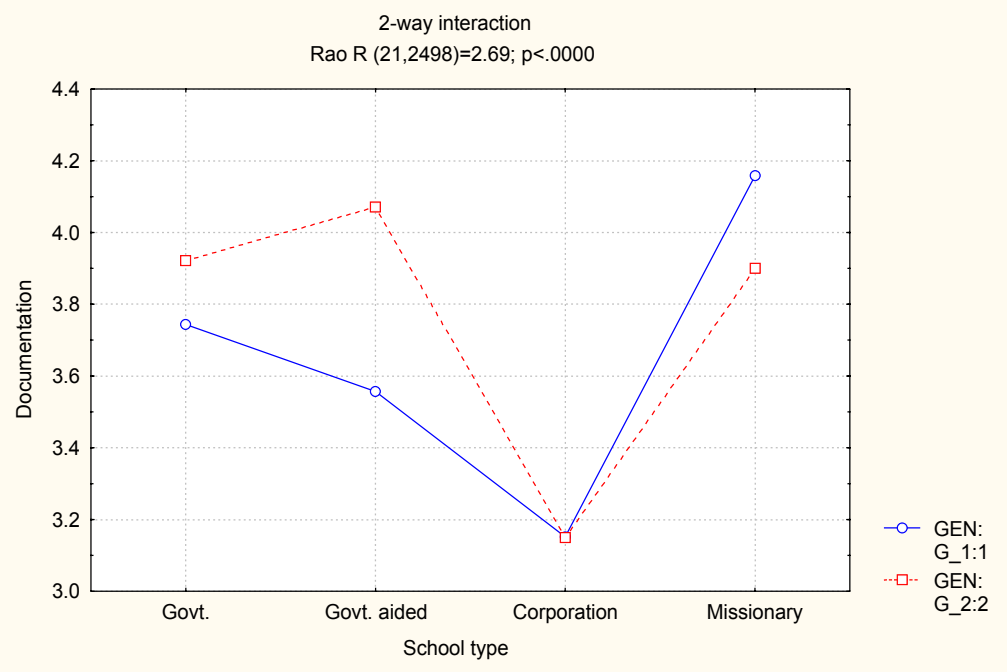


Figure 7.11 Relative preference to Documentation writing motivation variable by the boys and girls of different schools

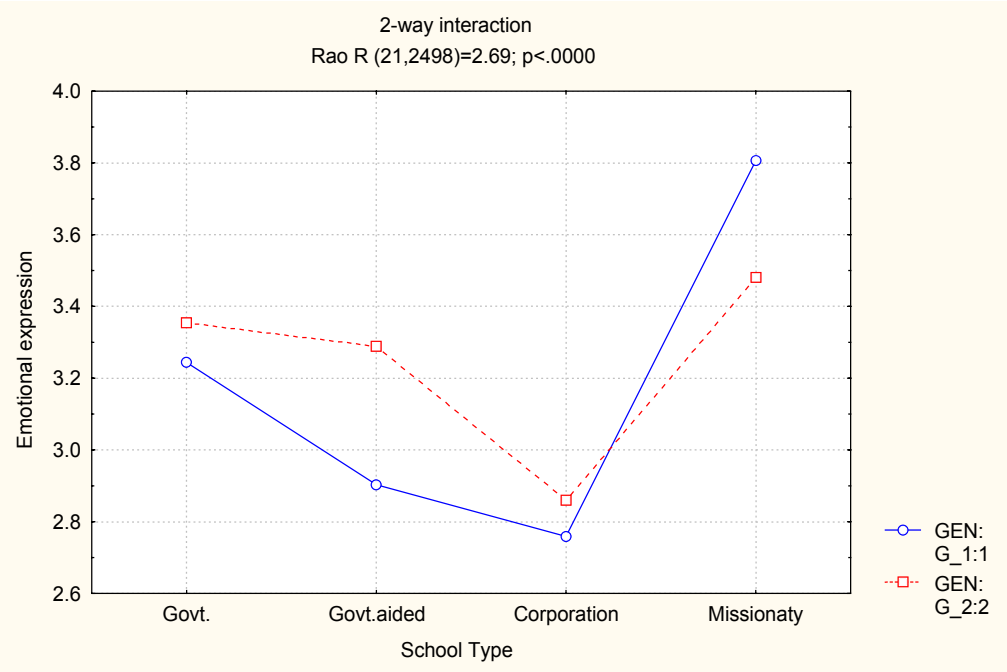


Figure 7.12 Relative preference to Emotional expression writing motivation variable by the boys and girls of different schools

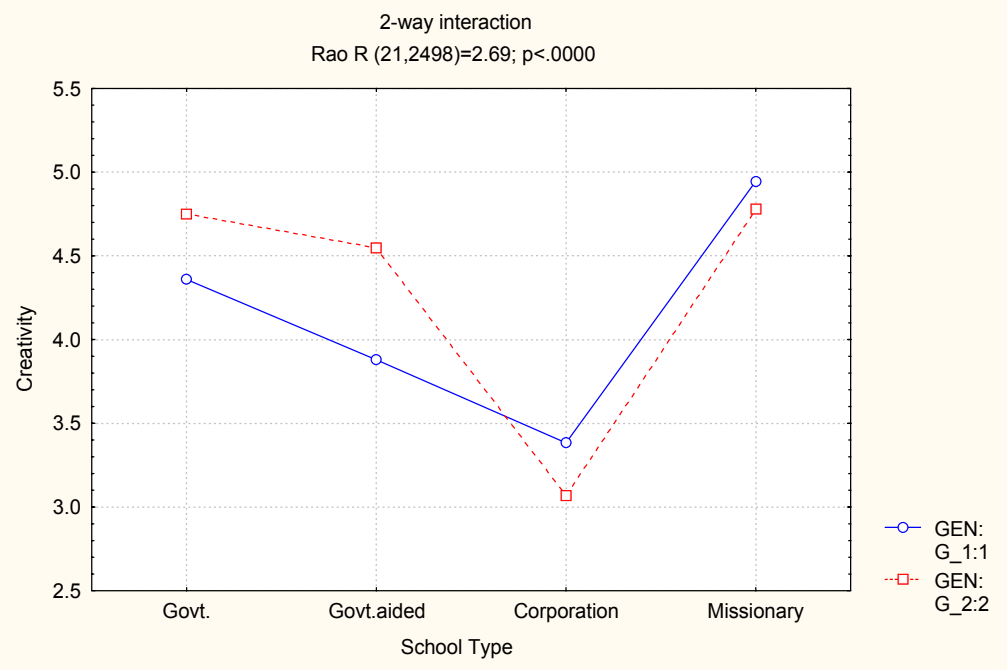


Figure 7.13 Relative preference to Creativity writing motivation variable by the boys and girls of different schools

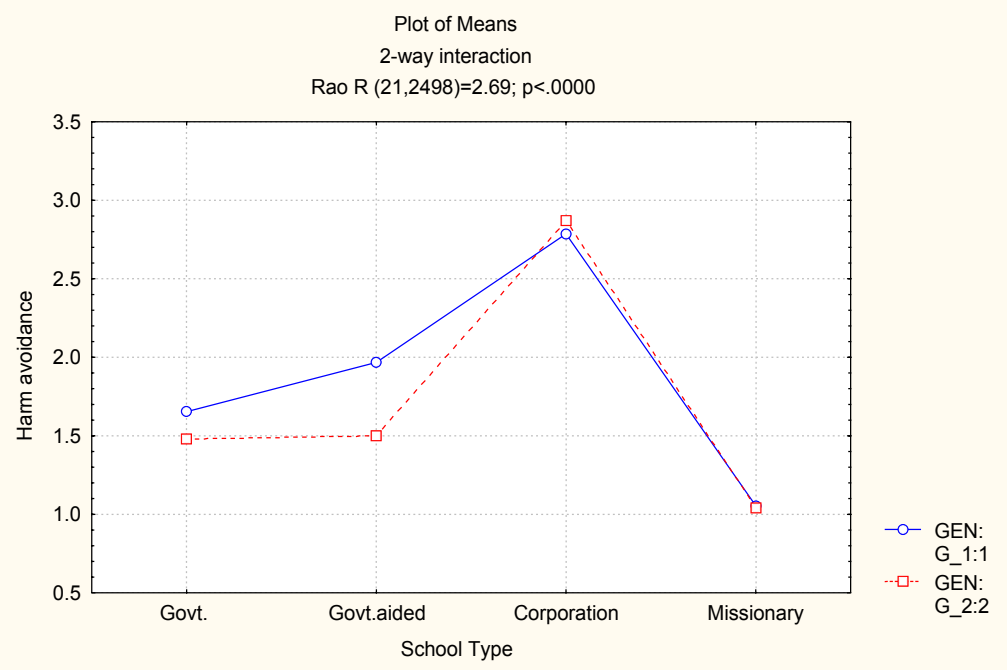


Figure 7.14 Relative preference to Harm avoidance writing motivation variable by the boys and girls of different schools

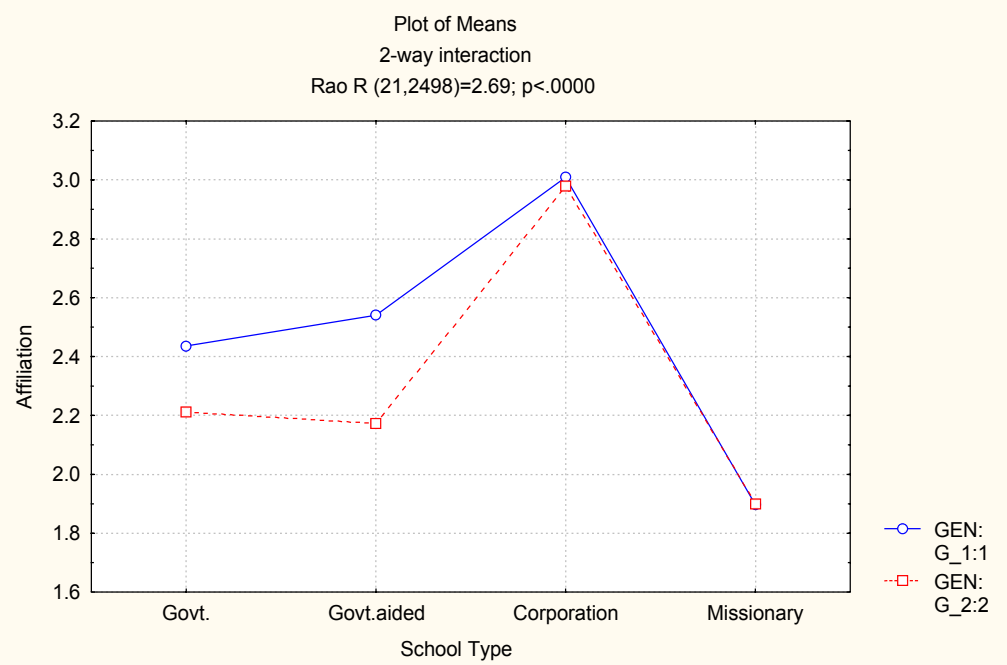


Figure.7.15 Relative preference to Affiliation writing motivation variable by the boys and girls of different schools

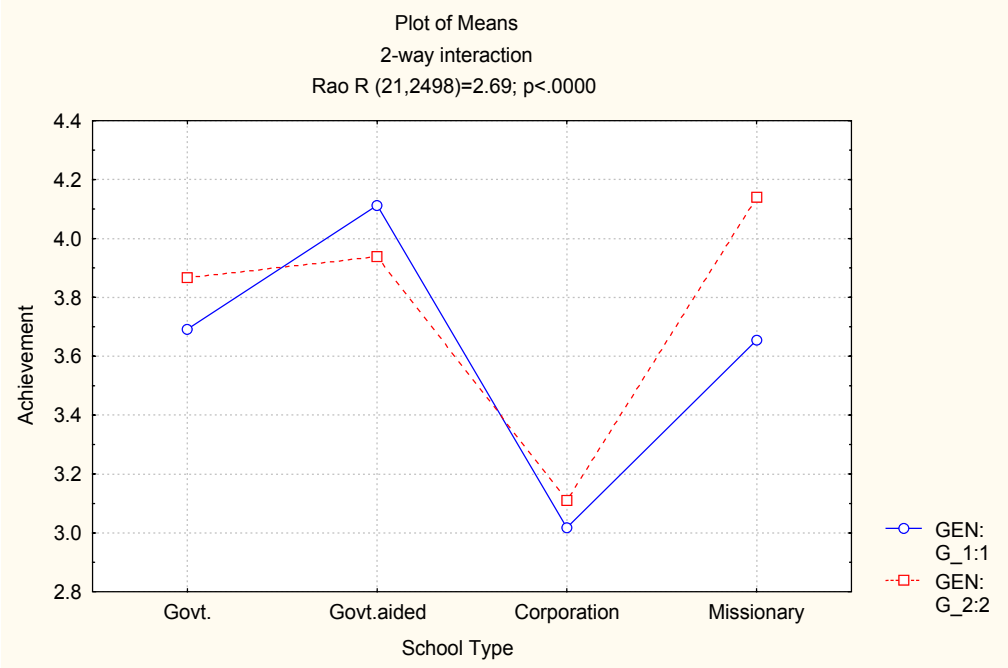


Figure 7.16 Relative preference to Achievement writing motivation variable by the boys and girls of different schools

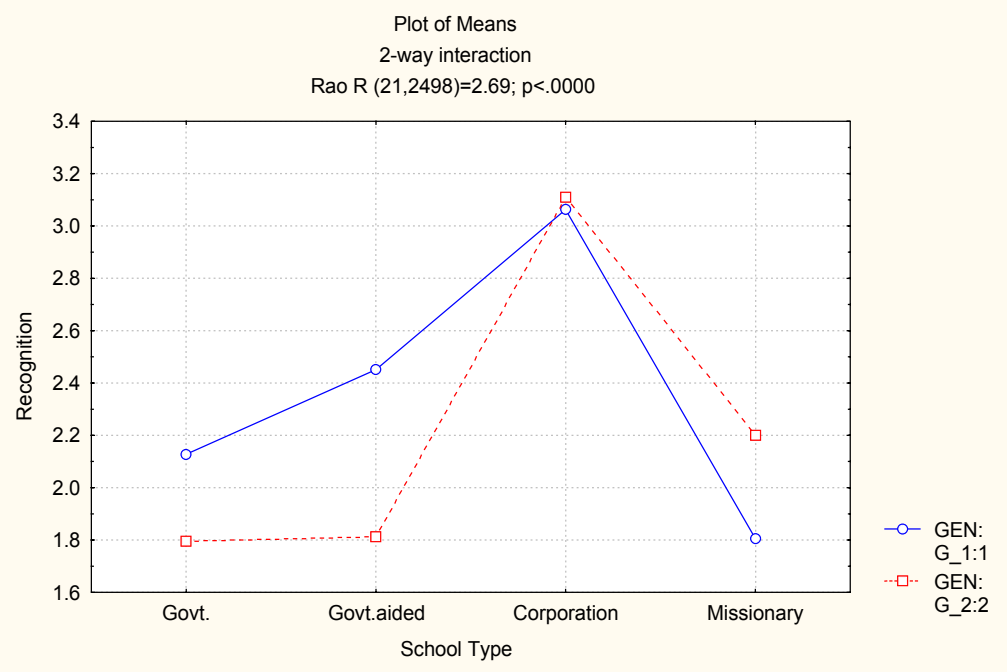


Figure 7.17 Relative preference to Recognition writing motivation variable by the boys and girls of different schools

# RESULTS : 8

## CORRESPONDENCE ANALYSIS FOR READING MOTIVATION

### A: Theoretical consideration

Correspondence analysis (CA) is an exploratory technique to investigate the magnitude and the substantive nature of association between the row and column categories of cross tabulation rather than to confirm or reject hypothesis about the underlying process which generate the data (Greenacre and Blasius, 1994). It is the technique to display the row and column variables of a two – way contingency table graphically as points on a corresponding lower dimensional vector spaces. According to Andrews (1978) graphical display of data is comprehensible to human minds, thus uncovering structure of the data and detecting departure, if any, from the structure. CA provides a joint plots of points representing both the rows and columns of the table. In CA, instead of trying to compare rows using proportions a smaller number of coordinates are created so that each successive coordinate axis acounts for a decreasing portion of the total association between the rows and columns as represented by the familiar Pearson Chi-square statistics. The first coordinate accounts for the largest part of the total association, the second for the next largest part and so on. CA follows certain steps as (I) testing independence between row and column variables by chi-square analysis. Significance of chi-square represents that CA provides a "strong model" of the row column dependence; (II) assigning weights(mass) to the row and columns variables by dividing total row or column frequencies by the total sample size. This mass has important role in ploting the points on axis; (III) extracting factors from row and column variables by principal component analysis. Factor extraction helps in identifying a sub-space of lower dimensionality which comes close to the points presented by column and also row variables; (IV) graphical presentation of the points of row and column variables on low dimensional plane, usually two dimensional planes.

Since CA follows principal component analysis of a set of row and column variables, it is expected that CA possibly would provide more information about data structure, especially closeness of row and column variables than simple frequency or percentage analysis of data. Besides, CA provides relative distribution of row and column

profiles through the value of inertia. Since CA before plotting the data standardizes the frequencies of each cell there is no difficulty in analyzing the groups of different sizes. There were very few applications of CA in psychological researches (Dutta Roy, 2002, Dutta Roy and Banerjee, 1998, Dutta Roy, Mukerjee and Chatterjee, 1993) . In present study CA was used for the following purposes:

- Correspondence among the variables of reading motivation
- Correspondence between the variables of reading motivation and school types.
- Correspondence between the variables of reading motivation and gender.
- Correspondence between the variables of reading motivation and classes.

Correspondence among the variables of reading motivation

Table 8.1 represents the 7 (7 reading motivation variables) X 7 (7 scoring categories ranging from 0 to 6) input data matrix used for plotting the correspondence between reading motivation variables and the scoring categories. Significant chi-square value ($X^2$ (df=36) = 3041.40, $p<0.00001$) suggests individual differences in reading motivation.

Figure 8.1 shows two broad clusters of reading motivation variables based on their extent of closeness. The first cluster included achievement, knowledge and application variables whereas second cluster included recognition, aesthetic and affiliation variables. Variables in the first cluster were more close to high scoring categories - S_4, S_5, S_6 than the variables in the second cluster. For theoretical purpose variables of the first cluster were named intrinsic reading motivation variables and the same in the second cluster were considered as extrinsic reading motivation variables. This suggests that students preferred intrinsic reading motivation variables more to the extrinsic reading motivation variables for their motivation to reading.

Reading Motivation across school types

Using input data matrix of 21 reading motivation variables (7 variables X 3 scoring categories of greater than 3, equal to 3 and less than 3) and 4 school type categories (Table 8.2), Fig. 8.2(a),(b) shows that reading motivation significantly (Chi-square(60)=411.701, $P<0.0000$) varied across school types. Corporation school was more close to recognition motive category. On the other hand, missionary school was more close to achievement motive. Application and aesthetic motives were close to both Govt. and Govt. aided schools.

The knowledge motive was equidistant from Missionary and Govt. and Govt. aided schools. Location of these three schools was far away from Corporation schools. This suggests that students in Corporation school wanted to read in order to be recognized by others. Application of lessons in daily life, color or pictures in the book lead students of Govt. and Govt. aided schools to read more. Students in the Missionary schools preferred reading in order to develop mastery over the competency.

Reading motivation by Gender across scoring categories

Using input data matrix of 14 reading motivation variables (7 variables X 2 genders) and 7 scoring categories (Table 8.3), Fig. 8.3 shows that reading motivation variables were significantly (Chi-square(78)=5115.52, P<0.000) spread out across scoring categories.

Reading motives of boys and girls were close to each other suggesting equal importance on all reading motivation variables by both genders to read the book.

Reading motivation by Grades across scoring categories

Table 8.4 shows input data matrix of 14 reading motivation variables (7 variables X 2 grades) and 7 scoring categories .On the basis of frequency distribution of Table a two dimensional graphical distribution (Figure 8.4) was plotted. Fig. 8.4 shows that reading motivation variables were significantly (Chi-square(78)=3115.37, P<0.000) spread out across scoring categories. The figure shows that reading motivation of class III and class IV were very close to each other suggesting equal importance on all reading motivation variables by students of both grades to read the book.

Table 8.1
Frequency and percentage distributions of Reading Motivation Variables across Scoring categories

| | Scoring Categories | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | Total |
| | f | % | f | % | f | % | f | % | f | % | f | % | f | % | |
| Achievement | 6 | 3.68 | 31 | 3.22 | 115 | 8.85 | 236 | 16.99 | 265 | 21.58 | 201 | 21.11 | 48 | 15.00 | 902 |
| Application | 1 | 0.61 | 20 | 2.08 | 50 | 3.85 | 126 | 9.07 | 274 | 22.31 | 296 | 31.09 | 135 | 42.19 | 902 |
| Knowledge | 3 | 1.84 | 22 | 2.28 | 68 | 5.23 | 156 | 11.23 | 239 | 19.46 | 304 | 31.93 | 110 | 34.38 | 902 |
| Aesthetic | 29 | 17.79 | 146 | 15.16 | 249 | 19.17 | 270 | 19.44 | 155 | 12.62 | 43 | 4.52 | 10 | 3.13 | 902 |
| Affiliation | 29 | 17.79 | 219 | 22.74 | 320 | 24.63 | 202 | 14.59 | 109 | 8.88 | 23 | 2.42 | 0 | 0 | 902 |
| Harm avoidance | 85 | 52.15 | 417 | 43.30 | 239 | 18.40 | 100 | 7.20 | 45 | 3.66 | 13 | 1.37 | 3 | 0.94 | 902 |
| Recognition | 10 | 6.13 | 108 | 11.21 | 258 | 19.86 | 299 | 21.53 | 141 | 11.48 | 72 | 7.59 | 14 | 4.38 | 902 |
| Total | 163 | 100 | 963 | 100 | 1299 | 100 | 1389 | 100 | 1228 | 100 | 952 | 100 | 320 | 100 | 6314 |

Chi-square (36) = 3041.4, p<0.00001

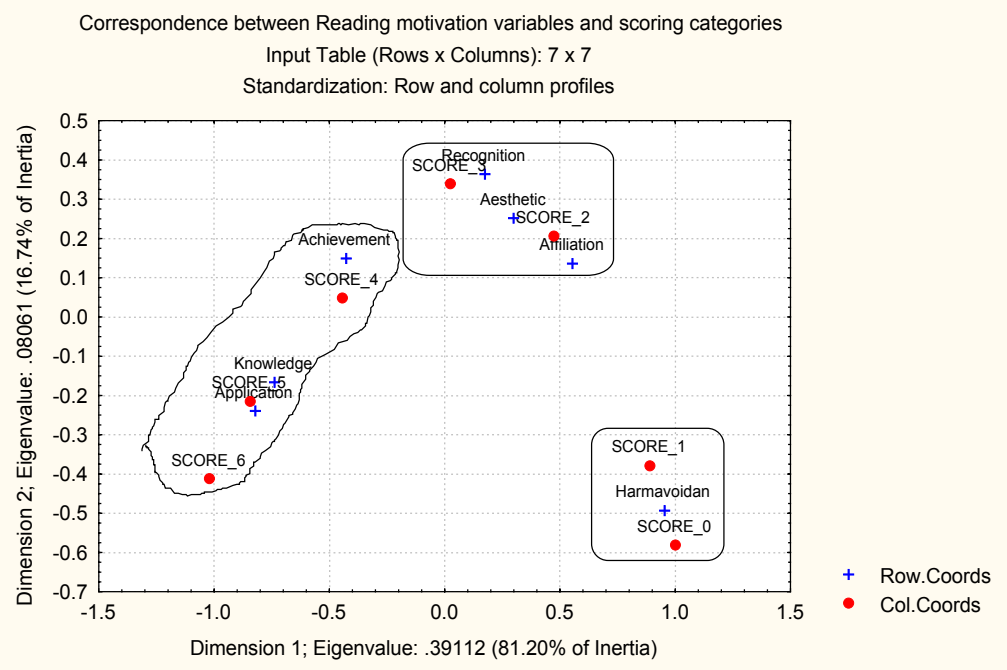


Figure 8.1 Correspondence between reading motivation variables and scoring categories

Table 8.2
Frequency distributions of Reading motivation variable scoring categories across school types

| | Government | Govt. aided | Corporation | Missionary | Chi-square | df | p-value |
|---|---|---|---|---|---|---|---|
| ACHGT3 | 118 | 145 | 108 | 143 | 12.46 | 6 | 0.05 |
| ACHM3 | 63 | 67 | 61 | 45 | | | |
| ACHLT3 | 39 | 43 | 43 | 27 | | | |
| APPGT3 | 176 | 208 | 131 | 190 | 55.42 | 6 | 0.00001 |
| APPM3 | 33 | 30 | 45 | 18 | | | |
| APPLT3 | 11 | 17 | 36 | 7 | | | |
| KNOWGT3 | 172 | 179 | 106 | 196 | 115.49 | 6 | 0.00001 |
| KNOWM3 | 36 | 53 | 52 | 15 | | | |
| KNOWLT3 | 12 | 23 | 54 | 4 | | | |
| AESGT3 | 50 | 66 | 35 | 57 | 18.5 | 6 | 0.0051 |
| AESM3 | 79 | 74 | 53 | 64 | | | |
| AESLT3 | 91 | 115 | 124 | 94 | | | |
| AFFGT3 | 38 | 40 | 42 | 12 | 33.44 | 6 | 0.0001 |
| AFFM3 | 43 | 63 | 58 | 38 | | | |
| AFFLT3 | 139 | 152 | 112 | 165 | | | |
| HAMTGT3 | 13 | 9 | 38 | 1 | 67.4 | 6 | 0.0001 |
| HAMTM3 | 26 | 32 | 27 | 15 | | | |
| HAMTLT3 | 181 | 214 | 147 | 199 | | | |
| RCTGT3 | 48 | 55 | 102 | 22 | 108.98 | 6 | 0.0001 |
| RCTM3 | 76 | 87 | 70 | 66 | | | |
| RCTLT3 | 96 | 113 | 40 | 127 | | | |

Total Chi-Square = 411.701, df =60, $p<0.0001$

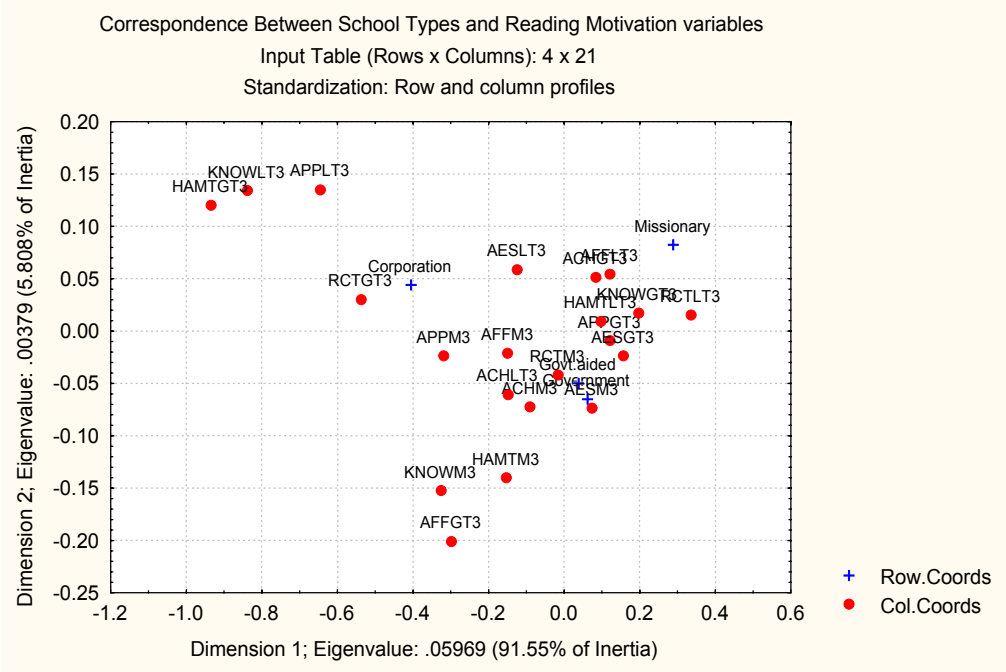


Figure 8.2 (a) Correspondence between school types and Reading motivation variables

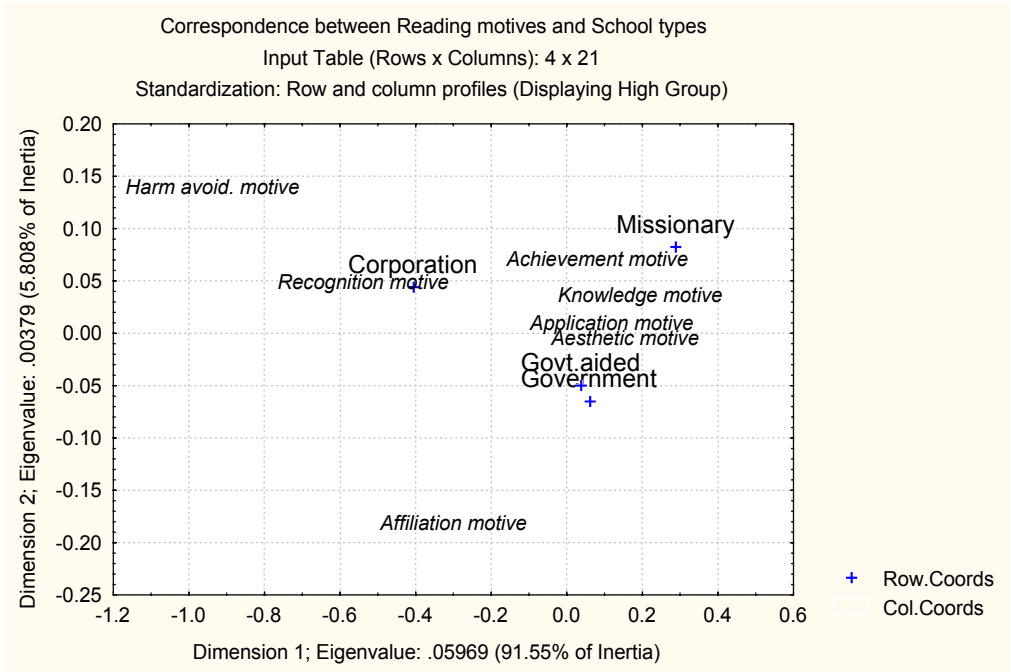


Figure 8.2 (b) Correspondence between school types and Reading motivation variables. Scoring categories greater than 3 only are displayed

Table 8.3
Gender wise frequency distribution of Reading motivation

| | Scoring Categories | | | | | | |
|---|---|---|---|---|---|---|---|
| Boys | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Achievement | 3 | 16 | 62 | 134 | 140 | 104 | 28 |
| Application | 1 | 14 | 27 | 72 | 134 | 175 | 64 |
| Knowledge | 15 | 34 | 80 | 134 | 163 | 61 | 487 |
| Aesthetics | 14 | 80 | 133 | 151 | 79 | 23 | 7 |
| Affiliation | 19 | 102 | 167 | 121 | 65 | 13 | 487 |
| Harm avoidance | 37 | 227 | 131 | 61 | 24 | 5 | 2 |
| Recognition | 9 | 74 | 135 | 148 | 70 | 42 | 9 |
| Girls | | | | | | | |
| Achievement | 3 | 15 | 53 | 102 | 125 | 97 | 20 |
| Application | 6 | 23 | 54 | 140 | 121 | 71 | 415 |
| Knowledge | 3 | 7 | 34 | 76 | 105 | 141 | 49 |
| Aesthetics | 15 | 66 | 116 | 119 | 76 | 20 | 3 |
| Affiliation | 10 | 117 | 153 | 81 | 44 | 10 | 415 |
| Harm avoidance | 48 | 190 | 108 | 39 | 21 | 8 | 1 |
| Recognition | 1 | 34 | 123 | 151 | 71 | 30 | 5 |

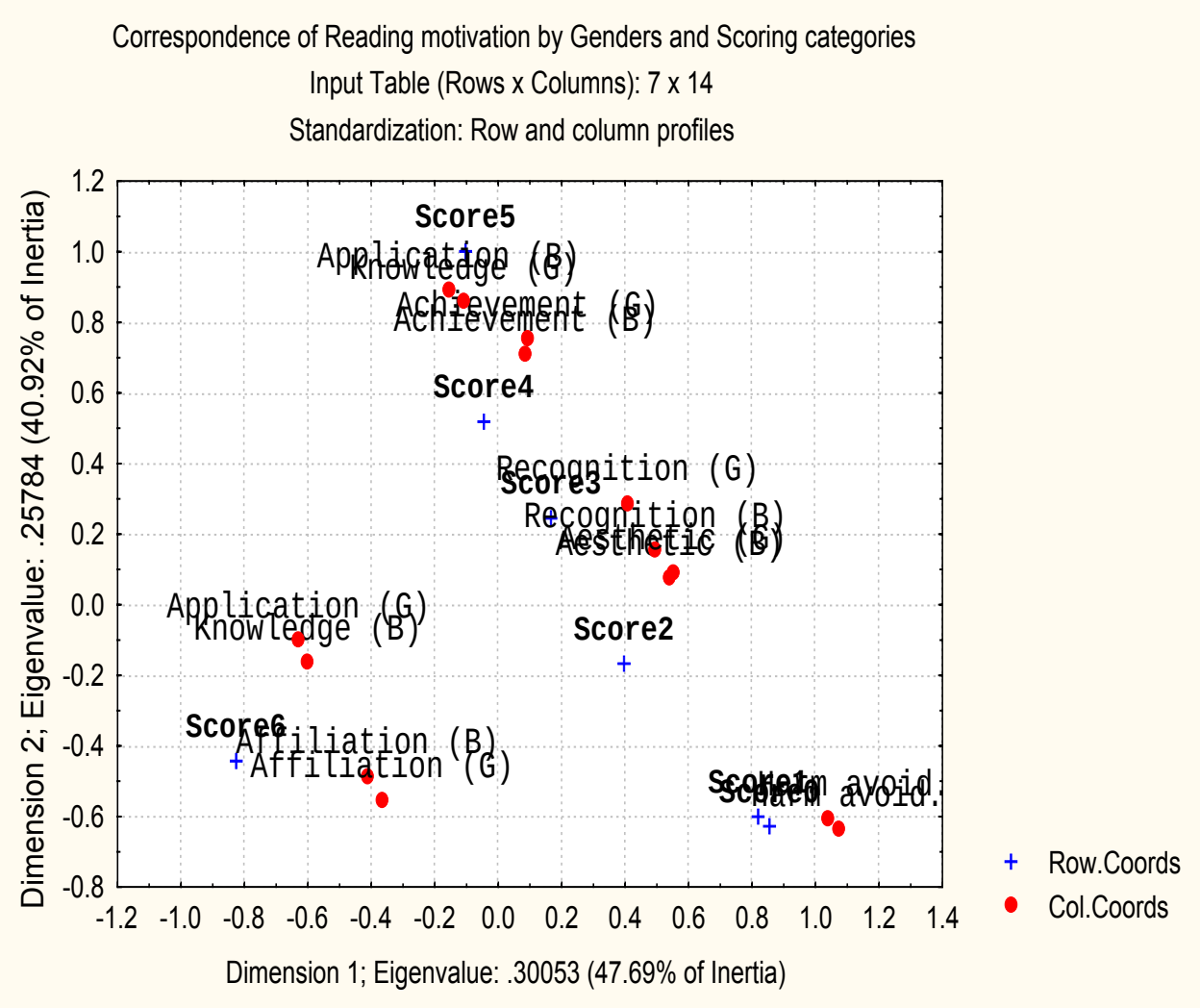


Figure 8.3 Correspondence of Reading motivation by genders and scoring categories

Table 8.4
Grade-wise frequency distribution of Reading Motivation variables

| | Scoring Categories | | | | | | |
|---|---|---|---|---|---|---|---|
| Class III | score 0 | score 1 | score 2 | score 3 | score 4 | Score 5 | score 6 |
| Achievement | 2 | 14 | 51 | 114 | 133 | 101 | 17 |
| Application | 1 | 10 | 29 | 72 | 119 | 145 | 56 |
| Knowledge | 2 | 8 | 36 | 89 | 120 | 138 | 39 |
| Aesthetic | 9 | 74 | 114 | 128 | 81 | 23 | 3 |
| Affiliation | 12 | 96 | 170 | 93 | 50 | 11 | 0 |
| Harm avoidance | 41 | 190 | 115 | 60 | 22 | 2 | 2 |
| Recognition | 5 | 40 | 119 | 151 | 71 | 43 | 3 |
| Class IV | | | | | | | |
| Achievement | 4 | 17 | 64 | 122 | 132 | 100 | 31 |
| Application | 0 | 10 | 21 | 54 | 155 | 151 | 79 |
| Knowledge | 1 | 14 | 32 | 67 | 119 | 166 | 71 |
| Aesthetic | 20 | 72 | 135 | 142 | 74 | 20 | 7 |
| Affiliation | 17 | 123 | 150 | 109 | 59 | 12 | 0 |
| Harm avoidance | 44 | 227 | 124 | 40 | 23 | 11 | 1 |
| Recognition | 5 | 68 | 139 | 148 | 70 | 29 | 11 |

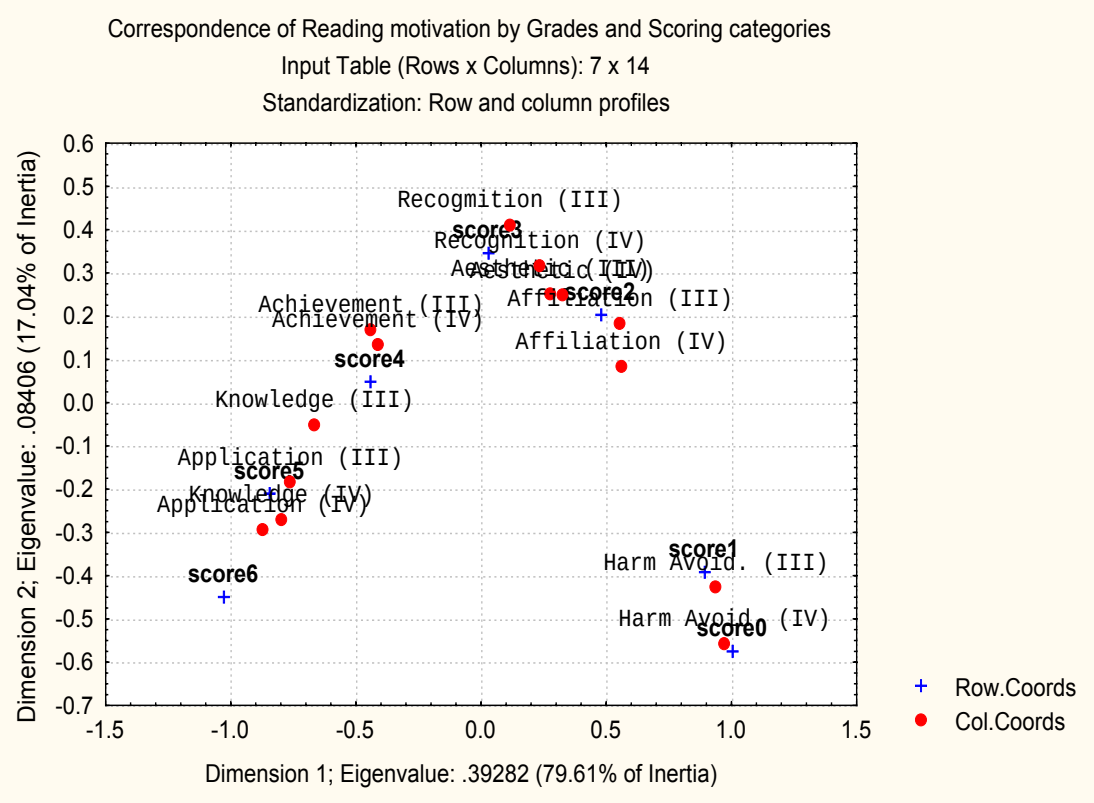


Figure 8.4 Correspondence of reading motivation by grades and scoring categories

# RESULTS : 9

## Correspondence Analysis for Writing Motivation

### Relationship among variables

Table 9.1 represents 7 (7 writing motivation variables ) X 7 (scoring categories ranging from 0 to 6) input data matrix used for plotting correspondence between writing motivation variables and the scoring categories. Significant chi-square value (Chi-square (36) = 2863.3, $p< 0.0000$) suggests that scoring categories were significantly spread out across the writing motivation variables in the Figure 9.1. Figure 9.1 shows two cluster of variables - first cluster included emotional expression, achievement, documentation and creativity variables, whereas second cluster included harm avoidance, recognition and affiliation variables. Variables in the first cluster were more close to moderate and high scoring categories namely S_3, S_4, and S_5 and S-6. On the other hand variables in the second cluster were more close to lower scoring categories namely S_0, S_1 and S_2. From theoretical stand point variables in the first cluster were considered as intrinsic writing motivation variables as they all reflect students' own urge for writing. Variables in the second cluster were considered as extrinsic writing motivation variables as they reflect students' motivation to write for external benefit. Intrinsic writing motivation variables were more important to the students as they were more close to the high scoring categories in comparison to extrinsic writing motivation variables close to low scoring categories. Closeness of creativity and Score 6 (maximum score) suggests that creativity motive plays most important role in writing motivation.

### Writing Motivation across School Types

Using input data matrix of 21 writing motivation variables (7 variables X 3 scoring categories of >3, 3, <3) and 4 school types (Table 9.2), Figures 9.2(a) and 9.2 (b) show that writing motivation varied significantly (Chi-square (60)=806.001, $p<0.0001$) across school types. The locations of low and moderate scores were omitted in Figure 9.2 (b) to understand clearly the variation in relative importance of writing motivation variables across school types. The figure shows close proximity of affiliation and recognition motives to the point of corporation school suggesting that students in Corporation schools wanted to write

in order to be loved and recognized by others. Government schools were more close to Documentation and creativity motives. This suggests that students of Government schools felt inner urge to write for maintenance of writing archives and for writing creative articles. Missionary schools and government aided schools were more close to emotional expression and achievement motives respectively suggesting that missionary school students wanted to write for expressing their own inner feelings and emotions and students of Government-aided schools wanted to write for obtaining good marks in exam

Keeping the record of relevant information and writing from ones own imaginations were the major motivating factors for writing of students of Government schools.

Writing Motivation by Gender across Scoring categories

Using input data matrix of 14 writing motivation variables (7 variables X 2 gender) and 7 scoring categories (Table 9.3), figure 9.3 shows that writing motivation variables were significantly (Chi-square (78)=2884.60, $p<0.0001$) spread out across scoring categories. Except harm avoidance motive, the remaining six writing motives of boys and girls were close to each other suggesting equal importance of these six writing motivation variables to the boys and girls for writing. More importance of harm avoidance motive to the girls (score=3) in comparison with boys (score=0) suggest that some threat of negative consequences may motivate the girls for writing but not the boys.

Writing Motivation by Grades and Scoring Categories

Table 9.4 shows input data matrix of 14 writing motivation variables (7 variables X 2 grades) and 7 scoring categories .On the basis of frequency distribution of Table 9.4 a two dimensional graphical distribution (Figure 9.4) was plotted. Fig.9.4 shows that writing motivation variables were significantly (Chi-square (78)=2970.18, $P<0.000$) spread out across scoring categories. The figure shows that writing motivation of students of grades III and IV were very close to each other suggesting that all the writing motivation variables were equally important for writing of the students of both grades.

Table 9.1
Frequency and percentage distributions of Writing Motivation Variables across Scoring categories

| | Scoring Categories | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variables | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | Total |
| | f | % | f | % | f | % | f | % | f | % | f | % | f | % | |
| Documentation | 1 | 0.47 | 23 | 2.56 | 93 | 8.04 | 178 | 12.6 | 413 | 28.4 | 150 | 20.2 | 26 | 8.55 | 884 |
| Emotional expression | 12 | 5.69 | 69 | 7.68 | 145 | 12.5 | 258 | 18.2 | 279 | 19.2 | 118 | 15.9 | 3 | 0.99 | 884 |
| Creativity | 2 | 0.95 | 18 | 2 | 86 | 7.43 | 155 | 10.9 | 222 | 15.2 | 202 | 27.2 | 199 | 65.5 | 884 |
| Harm avoidance | 118 | 55.9 | 310 | 34.5 | 230 | 19.9 | 127 | 8.96 | 71 | 4.88 | 25 | 3.36 | 3 | 0.99 | 884 |
| Affiliation | 25 | 11.8 | 186 | 20.7 | 308 | 26.6 | 212 | 15 | 107 | 7.35 | 35 | 4.7 | 11 | 3.62 | 884 |
| Achievement | 8 | 3.79 | 26 | 2.9 | 79 | 6.83 | 295 | 20.8 | 247 | 17 | 179 | 24.1 | 50 | 16.4 | 884 |
| Recognition | 45 | 21.3 | 266 | 29.6 | 216 | 18.7 | 193 | 13.6 | 117 | 8.04 | 35 | 4.7 | 12 | 3.95 | 884 |
| Total | 211 | 100 | 898 | 100 | 1157 | 100 | 1418 | 100 | 1456 | 100 | 744 | 100 | 304 | 100 | 6188 |

Chi-square (36)=2863.3, p<0.00001

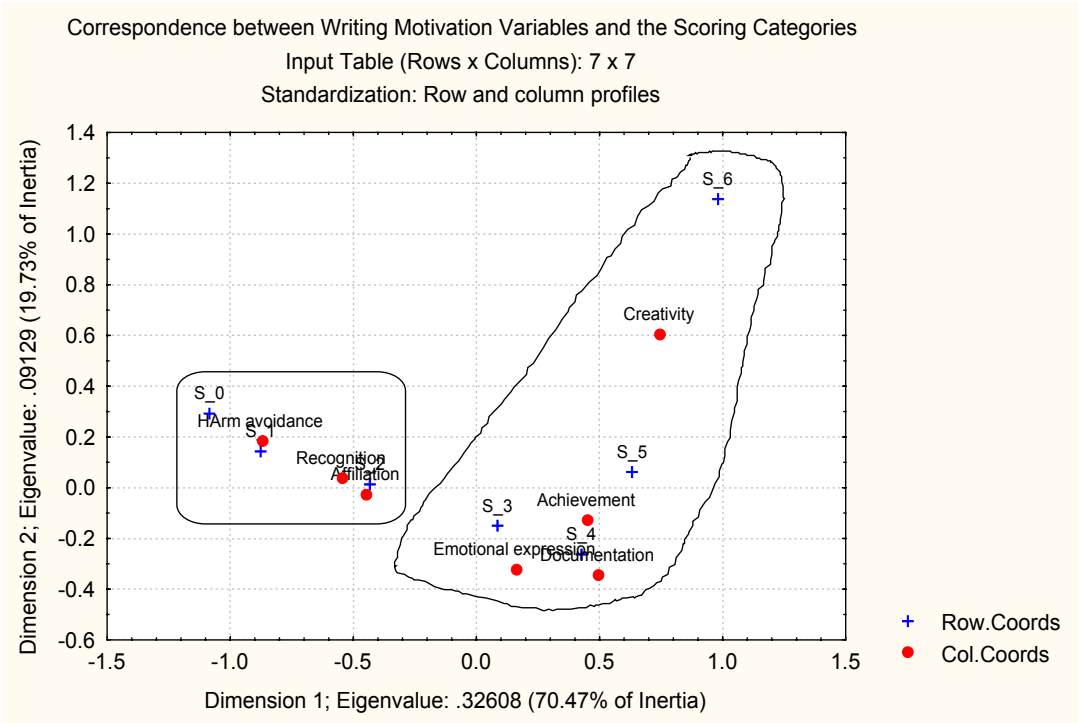


Figure 9.1 Correspondence between writing motivation variables and the scoring categories

Table 9.2
Frequency distributions of Writing motivation variable scoring categories across school types

| | Government | Govt. aided | Corporation | Missionary | Chi square(df=6) | P Value |
|---|---|---|---|---|---|---|
| DOCGT3 | 148.00 | 171.00 | 78.00 | 192.00 | | |
| DOCLT3 | 13.00 | 34.00 | 65.00 | 5.00 | | |
| DOCM3 | 44.00 | 47.00 | 69.00 | 18.00 | 152.72 | 0.0001 |
| EMOGT3 | 100.00 | 99.00 | 68.00 | 133.00 | | |
| EMOLT3 | 52.00 | 68.00 | 77.00 | 29.00 | | |
| EMOM3 | 53.00 | 85.00 | 67.00 | 53.00 | 50.35 | 0.0001 |
| CRGT3 | 167.00 | 181.00 | 87.00 | 188.00 | | |
| CRLT3 | 18.00 | 25.00 | 54.00 | 9.00 | | |
| CRM3 | 20.00 | 46.00 | 71.00 | 18.00 | 132.37 | 0.0001 |
| HAGT3 | 11.00 | 16.00 | 68.00 | 4.00 | | |
| HALT3 | 174.00 | 198.00 | 90.00 | 196.00 | | |
| HAM3 | 20.00 | 38.00 | 54.00 | 15.00 | 181.06 | 0.0001 |
| AFGT3 | 32.00 | 33.00 | 70.00 | 18.00 | | |
| AFLT3 | 132.00 | 152.00 | 74.00 | 161.00 | | |
| AFM3 | 41.00 | 67.00 | 68.00 | 36.00 | 86.91 | 0.0001 |
| ACGT3 | 114.00 | 166.00 | 82.00 | 114.00 | | |
| ACLT3 | 24.00 | 16.00 | 62.00 | 11.00 | | |
| ACM3 | 67.00 | 70.00 | 68.00 | 90.00 | 86.29 | 0.0001 |
| RCGT3 | 27.00 | 43.00 | 76.00 | 18.00 | | |
| RCLT3 | 145.00 | 164.00 | 62.00 | 156.00 | | |
| RCM3 | 33.00 | 45.00 | 74.00 | 41.00 | 116.31 | 0.0001 |

Chi-square (60)=806.007, $p<0.0001$

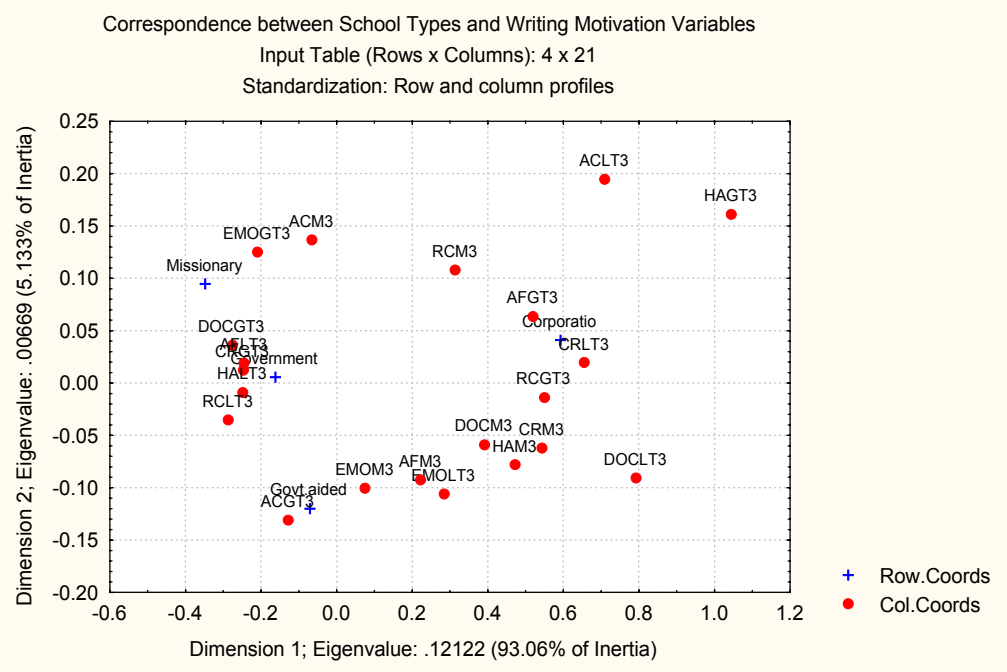


Figure 9.2 (a) Correspondence between school types and writing motivation variables

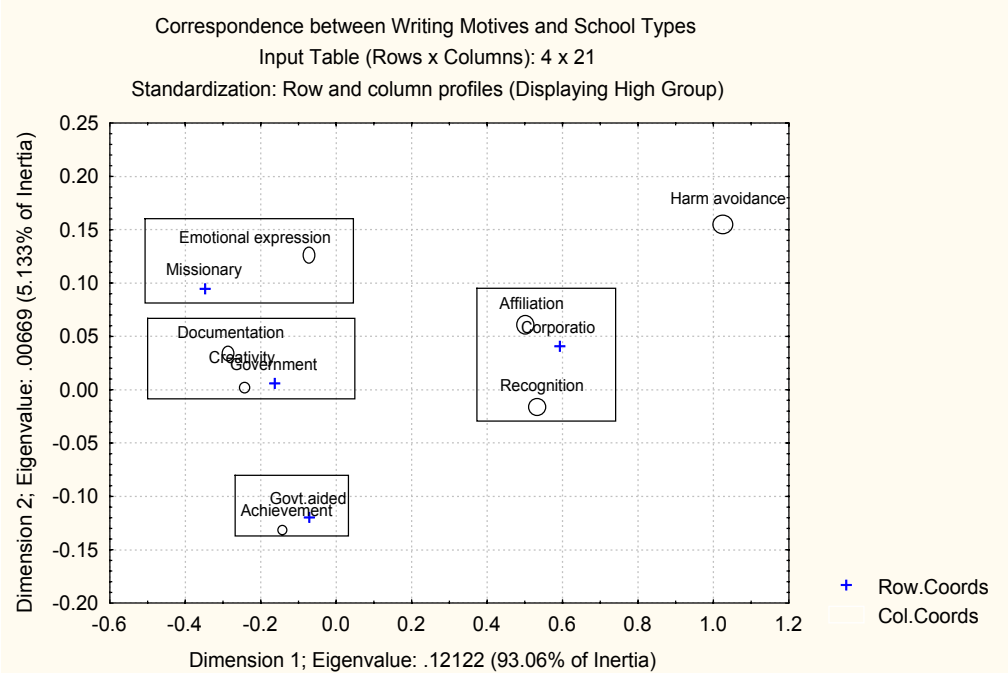


Figure 9.2 (b) Correspondence between school types and writing motivation variables . Only scoring categories greater than 3 are displayed

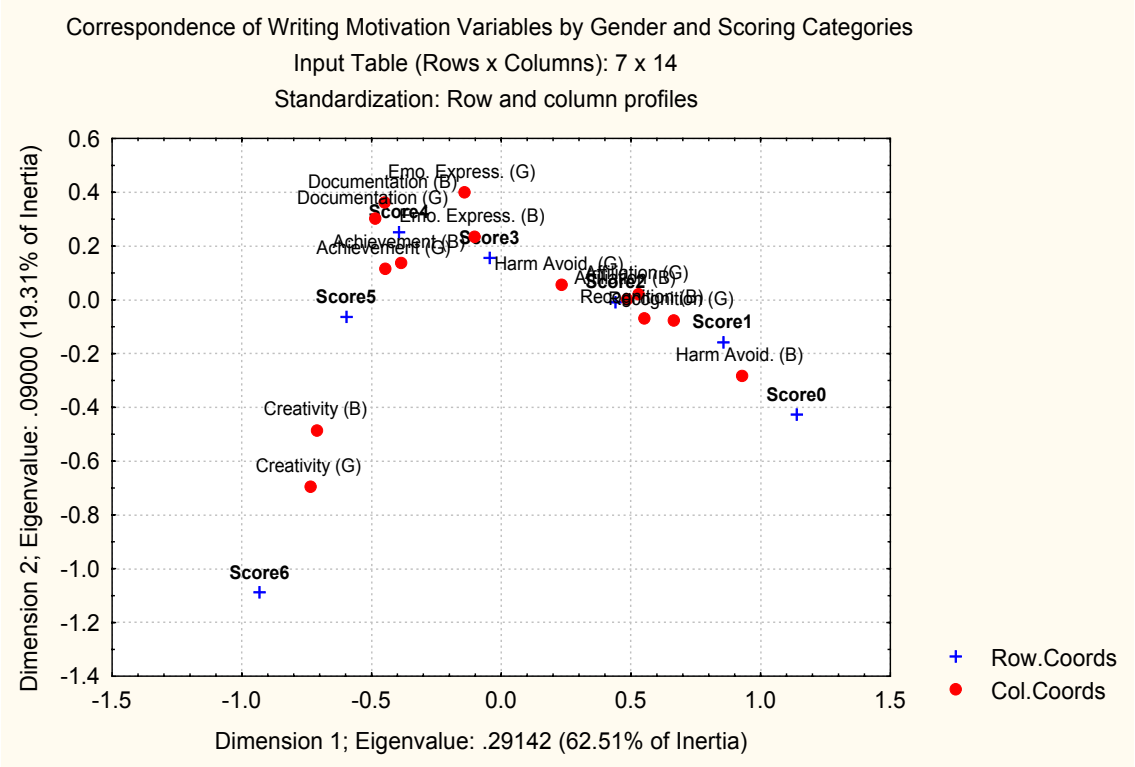


Figure 9.3 Correspondence of writing motivation variables by gender and scoring categories

Table 9.3
Gender-wise Frequency Distribution of Writing Motivation Variables

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | Chi square | P value |
|---|---|---|---|---|---|---|---|---|---|
| Boy | | | | | | | | | |
| Documentation | 0 | 10 | 56 | 100 | 228 | 72 | 13 | | |
| Emotional expression | 10 | 49 | 78 | 109 | 150 | 80 | 3 | | |
| Creativity | 1 | 8 | 44 | 92 | 123 | 114 | 97 | | |
| Harm avoidance | 79 | 143 | 130 | 71 | 40 | 13 | 3 | | |
| Affiliation | 19 | 105 | 149 | 105 | 75 | 19 | 7 | | |
| Achievement | 5 | 7 | 54 | 170 | 128 | 88 | 27 | | |
| Recognition | 30 | 126 | 116 | 112 | 66 | 21 | 8 | 1403.80 | 0.0001 |
| Girl | | | | | | | | | |
| Documentation | 1 | 13 | 37 | 78 | 185 | 78 | 13 | | |
| Emotional expression | 2 | 20 | 67 | 149 | 129 | 38 | 0 | | |
| Creativity | 1 | 10 | 42 | 63 | 99 | 88 | 102 | | |
| Harm avoidance | 0 | 39 | 167 | 100 | 56 | 31 | 12 | | |
| Affiliation | 6 | 81 | 159 | 107 | 32 | 16 | 4 | | |
| Achievement | 3 | 19 | 25 | 125 | 119 | 91 | 23 | | |
| Recognition | 15 | 140 | 100 | 81 | 51 | 14 | 4 | 1292.93 | 0.0001 |

Chi-square(78)=2884.60, $p<0.0001$

Table 9.4
Grade-wise frequency distribution of Writing Motivation variables

| | Scoring Categories | | | | | | |
|---|---|---|---|---|---|---|---|
| Class III | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Documentation | 1 | 14 | 50 | 84 | 193 | 69 | 13 |
| Emotional expression | 7 | 32 | 72 | 130 | 138 | 43 | 2 |
| Creativity | 2 | 5 | 51 | 78 | 113 | 96 | 79 |
| Harm avoidance | 41 | 159 | 99 | 73 | 40 | 12 | |
| Affiliation | 8 | 92 | 133 | 108 | 64 | 15 | 4 |
| Achievement | 4 | 15 | 34 | 140 | 121 | 89 | 21 |
| Recognition | 17 | 115 | 107 | 100 | 65 | 13 | 7 |
| Class IV | | | | | | | |
| Documentation | | 9 | 43 | 94 | 220 | 81 | 13 |
| Emotional expression | 5 | 37 | 73 | 128 | 141 | 75 | 1 |
| Creativity | 0 | 13 | 35 | 77 | 109 | 106 | 120 |
| Harm avoidance | 77 | 151 | 131 | 54 | 31 | 13 | 3 |
| Affiliation | 17 | 94 | 175 | 104 | 43 | 20 | 7 |
| Achievement | 4 | 11 | 45 | 155 | 126 | 90 | 29 |
| Recognition | 28 | 151 | 109 | 93 | 52 | 22 | 5 |

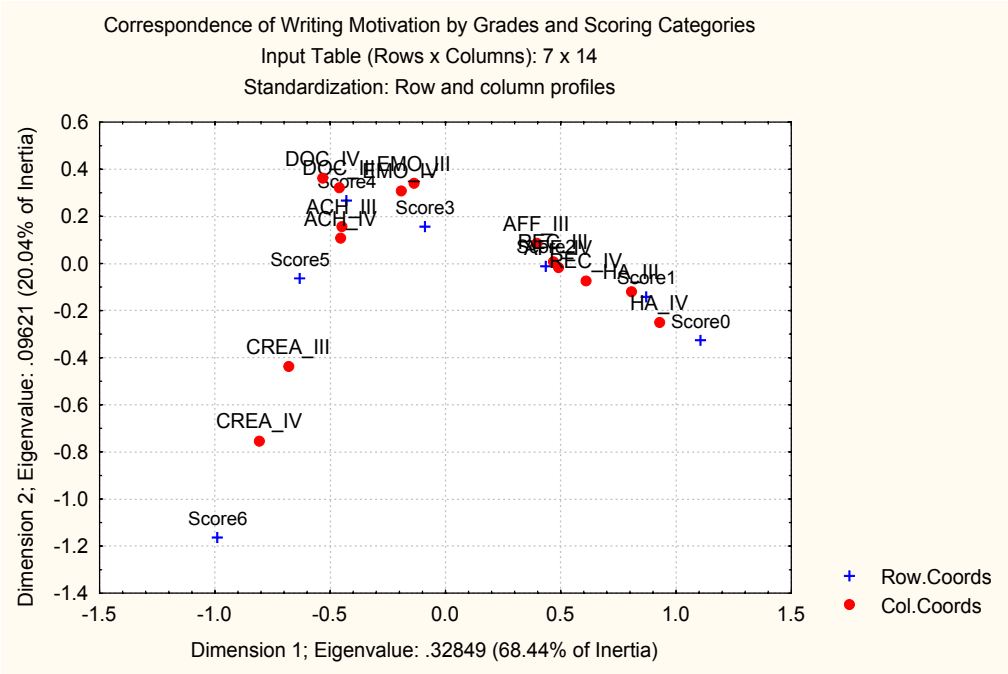


Figure 9.4 Correspondence of writing motivation variables by grades and scoring categories

## Summary Findings

1 Content analysis of interview responses revealed that students in primary education are motivated to read for three intrinsic motivation (reading for mastery over difficult tasks or Achievement, for understanding different information or Knowledge, for application of knowledge in reality or Application) and four extrinsic reading motivation (reading to be loved or Affiliation, to be praised or Recognition and not to be punished or Harm avoidance).

2 Their motivation to writing is due to four intrinsic motivation (writing for achieving the knowledge or Documentation, sharing feelings or Emotional expression, for mastering the difficult task or achievement, for developing some new ideas or creativity) and three extrinsic motivation (writing for being loved by others or Affiliation, being praised by others or Recognition and for avoiding punishment or Harm avoidance).

3 2 self-administered questionnaires were developed for assessing relative preference to reading and writing motivation.

4 Each questionnaire included 42 paired associated items with 21 conditions. Test retest reliability of both questionnaires were high and item analysis of both questionnaires noted good discriminating power of the items.

5 Intrinsic reading and writing motivation variables were positively and extrinsic variables were negatively correlated with academic achievement.

6 Correlation coefficients of reading and writing motivation variables differed across examination marks in first and second languages and arithmetic.

7 MANOVA revealed that reading and writing motivation of boys and girls differed across four types of schools - Government, Government aided, Corporation and Missionary schools.

8 Reading and writing motivation of students do not vary between the genders and between the grades

9 Correspondence analysis revealed two clusters of reading and writing motivation variables. Scoring categories of intrinsic motivation variables were closely located. Similarly Scoring categories of extrinsic variables were close to each other.

10 Step wise regression analysis revealed preference to intrinsic reading and writing motivation among high performer in the school examination. On the other hand, low performers preferred extrinsic reading and writing motivation variables

## Limitations and Future Research

1 Explored reading and writing motivation variables were based upon urban data. Therefore future research should be oriented to interview students in rural areas for exploring the motivation variables.

2 The table of sample characteristics revealed unequal representation of students across different castes and religions. So further research should be concerned with this issue.

3 It is assumed that motivation to read and write is affected by the socio-economic conditions, educational and occupational status of the parents. Therefore, future research should be oriented to identify possible correspondence between the above variables and variables of reading and writing motivation.

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# Apendix

1. Reading Motivation Questionnaire in Bengali Version
2. Writing Motivation Questionnaire in Bengali Version