



A STUDY OF EFFECTIVENESS OF TOOLKIT OF LIFE SKILL EDUCATION PROGRAMME ON BODILY-KINAESTHETIC INTELLIGENCE OF SECONDARY SCHOOL STUDENTS

Mrs. Mintu Sinha¹, Ph. D. & Bhagwan Balani², Ph. D.

¹Principal, Bombay Teachers' Training College Colaba

²Assistant Professor, Bombay Teachers' Training College Colaba

Abstract

Lazear, D. G. (1994) in his book, "pathway of learning, teaching students and parent about multiple intelligences" describes bodily-kinaesthetic intelligence, a process of knowing that occurs through physical movement and performance (learning by doing). It employs such tools as dance, drama, physical games, mime role-play, body language, physical exercise and inventing. Bruce Campbell (2008) in his book, "Handbook of Differentiated Instruction Using the Multiple Intelligences Lesson Plans & More" describes bodily-kinaesthetic intelligence as the capacity to manipulate objects and use a variety of physical skills. This intelligence also involves a sense of timing, and the perfection of skills through mind-body union. Athletes, dancers, surgeons, and craftspeople exhibit highly developed kinaesthetic intelligence. This paper focuses outcome of an experimental study on effectiveness of toolkit of life skill education programme on Bodily-kinaesthetic intelligence of secondary school students. The experiments were conducted in more than 20 secondary schools. Purposive and Convenient sampling technique has been used for drawing the sample. Secondary schools affiliated to SSC board were considered for the study. The project was carried out in English medium and co- education type of schools. These findings of the study indicate that the gain scores of experimental and control groups differ significantly. It can thus be inferred that intervention programme organized has helped to develop Bodily-kinaesthetic intelligence in the students of standard VIII of the experimental group. It can be inferred that the contribution of intervention of the educational programme (Toolkit) in the development of Bodily-kinaesthetic intelligence is 13.41%. Thus it can be concluded that the intervention of the educational programme (Toolkit) has helped to enhance Bodily-kinaesthetic intelligence among VIII standard students.

Keywords: Effectiveness, Toolkit, Life Skill Education Programme, Bodily-kinaesthetic Intelligence, Secondary School Students



Scholarly Research Journal's is licensed Based on a work at www.srjis.com

The theory of multiple intelligences urges a rethinking of how teachers should approach subjects and topics. If children do not learn in any one way, then the teacher truly must teach "in the way the child learns." Guided by the very diverse intellectual profiles of students in a classroom, teaching must become less of a single approach aimed at all students and more of

a crafted effort to engage the multiple intelligences, or potentials, represented in the room.(Chipongian, 2000)

Gardner's theory of multiple intelligences resonates so strongly for many educators because it offers a model for acting on what we believe all children have strengths. It is student-centered model in which the curriculum is often modified to fit the students. Each child enters school with a different level of intelligence, interest, and previous knowledge. One of the most urgent and most controversial questions today is what kind of organization will encourage the fullest development of the varied mental capacities and inclinations of students. In general, students are so heterogeneous in their characteristics and potentialities that it might seem desirable to plan for each one an education uniquely suited to him.

Tsung- Yen Chuang Sheng-hsiung Su (2012) carried out a research project to study the effect of Gaming on multiple intelligences of student; Based on the theory of authentic assessment, four 5th graders were involved in this study; authors investigated the effect of multiple intelligences when students played mobile games, and used two handheld devices for this experiment: (a) Nintendo Dual Screen and (b) Big Brain Academy, a puzzle game. Observations and interviews were conducted for data collection to understand students' development of multiple intelligences after the experiment. They found that students' spatial intelligence and logical-mathematical intelligence can be assessed during the game, and their spatial intelligence, logical mathematical intelligence, interpersonal intelligence, and bodily-kinesthetic intelligence were enhanced.

Fathi Abdulhamid Abdulkader, Kerim Gundogdu, Mourad Ali Eiss, (2009) indicated through their action research the effectiveness of the program employed in improving reading skills; namely word recognition and reading comprehension skills in the target students. On the basis of the findings, the study advocated for the effectiveness of the multiple intelligence-based program in improving the reading skills of learning disabled students.

Mahmoud Mohammad Sayed Abdallah, (2008) found that the MI-based training programme had a significant positive effect on developing the first-year English majors' oral communication skills.

Mary E. Buschick, B.S., Tracey A. Shipton, B.S., Laurie M. Winner, B.S., Melissa D. Wise, B.S., (2007) observed there was an increase of students reading at home, visiting a library, and feeling comfortable and confident when approaching a new word in reading. Through this study, the teacher researchers became more tolerant of students' needs and behaviors that are attributed to their dominant intelligence.

Osman Nafiz Kaya¹, Alev Doğan, Nur Gökçek, Ziya Kılıç & Esmâ Kılıç, (2007) found significant differences in favour of the students of the experimental group with respect to both achievement in and attitudes toward science. Empirical evidence indicated that compared to traditional teaching, the MI teaching approach significantly increased 8th Grade students' achievement in and attitudes toward science.

Osman Nafiz Kaya & Jazlin Ebenezer (2006) studied the invisible obstacles on the implementation of Multiple Intelligences Theory in K-8 classrooms in Turkey. The aim of this study was to investigate the factors affecting the implementation of Multiple Intelligences (MI) Theory in K-8 classrooms in Turkey. The data based on the interviews and classroom observations showed that although most of these teachers, students and parents had positive attitudes toward MI theory, there had some important difficulties in the implementation of the MI theory in the classrooms.

Davis Linda, (2004) studied how using the Theory of Multiple Intelligences would might increase fourth-grade students' academic achievement in science. The problem to be solved was that 4th-grade students in a rural elementary school exhibited low academic achievement in science. The independent variable consisted of the MI learning centers, and student achievement was the dependent variable. Analysis of the results indicated that there was a significant improvement in students' achievement, behavior, and self-esteem. Teachers can use this strategy as a way to increase student academic achievement and to enhance their own professional development.

The researchers were keen to explore the relationship of multiple intelligences with other educational significant variables with the help of study of review of related literature. Armstrong Thomas (1999) in his book have defined Bodily kinaesthetic intelligence as intelligence of the physical self. It includes talent in controlling one's body movements and also in handling objects skilfully. Athletes, crafts people, mechanics, and surgeons' posses a great measure of this kind of thinking. So too did Charlie Chaplin, who drew upon it in order to perform his many ingenious routines as the "Little Tramp". Body smart individuals can be skilled at sewing, carpentry or model-building. Or they may enjoy physical pursuits like hiking, dancing, jogging, camping, swimming or boating. They are hands on people who have good tactile sensitivity, need to more their bodies frequently, and get "gut reactions" to change. Bodily-Kinaesthetic Intelligence allows individuals to use all or part of the body to create products or solve problems. Athletes, surgeons, dancers, choreographers, and crafts people all use bodily-kinaesthetic intelligence. The capacity is also evident in students who relish gym class and school dances, who prefer to carry out school projects by making models

rather than writing reports, and who toss crumpled paper with frequency and accuracy into wastebaskets across the room. Lazear, D. G. (1994) in his book, “pathway of learning, teaching students and parent about multiple intelligences” describes bodily-kinaesthetic intelligence, a process of knowing that occurs through physical movement and performance (learning by doing). It employs such tools as dance, drama, physical games, mime role-play, body language, physical exercise and inventing. Bruce Campbell (2008) in his book, “Handbook of Differentiated Instruction Using the Multiple Intelligences Lesson Plans & More” describes bodily-kinaesthetic intelligence as the capacity to manipulate objects and use a variety of physical skills. This intelligence also involves a sense of timing, and the perfection of skills through mind-body union. Athletes, dancers, surgeons, and craftspeople exhibit highly developed kinaesthetic intelligence. They found that there were very few studies which emphasised the effectiveness of educational programmes on multiple intelligences of students. Therefore they focussed their study on effectiveness of toolkit of life skill education programme on Bodily-kinaesthetic intelligence of secondary school students.

Aim of the study: To study the effectiveness of toolkit of life skill education programme on Bodily-kinaesthetic intelligence of secondary school students.

Objectives of the study:

1. To study the effectiveness of toolkit of life skill education programme on Bodily-kinaesthetic intelligence of secondary school students.
2. To compare the pre and post test scores of Bodily-kinesthetic intelligence for experimental and control groups.
3. To compare the gain scores of Bodily-kinaesthetic intelligence test for experimental and control groups.
4. To measure the proportion of variance in gain scores of Bodily-kinaesthetic intelligence Due to intervention of the educational programme (Toolkit)

Research Design: For the present study, the researchers have used the experimental research approach. The present study focuses on establishing the cause-effect relationship between the independent variable and the dependant variable. The cause, independent variable is ‘Toolkit’ and the dependant variable is the Multiple Intelligences. Therefore the researcher used the

Quasi-Experimental Pretest - posttest Non-equivalent group design.

Sampling: For the present experimental study, the eight standard students has been selected and considered for the study. The sample of study has been 1200 students studying in secondary schools of South and Central Mumbai.

Sampling Technique: Purposive and Convenient sampling technique has been used for drawing the sample. Secondary schools affiliated to SSC board have been considered for the study. The schools **will be of English** medium and co- education type only.

Treatment: The comprehensive developed toolkit has been designed that comprises teaching and learning activities to extend Gardner's theory to effective classroom practice. The newly developed toolkit comprises 15 comprehensive student centric educational activities based on the implications of multiple-intelligence theory that has stimulated student teachers to find more ways of helping all students in their classes. The specially designed workshops has been organised by student teachers in secondary schools of South and Central Mumbai.

Tools of the Study: The tool has been constructed to measure multiple intelligences of experimental and control groups before and after the treatment. The data has been collected from eight standard secondary school students of 20 schools. The researchers have constructed and standardised tool to measure the multiple intelligences of VIII standard students with the help of experts and has established the validity and reliability of the tool.

Data Collection: Data has been collected from the experimental and control groups. The data was collected in two phases one in the beginning of the study as pretest scores and two at the end of the treatment as posttest scores.

Analysis of Data:

Analysis is critical for the process of research. Analysis is a form of description of data gathered in a systematic and scientific way. Statistical analysis acts as a quantitative link for the communication of result. The data collected has been scored and compiled to appropriate statistical tests to test the hypotheses formulated. The data has been analyzed using descriptive and inferential statistics.

Descriptive analyses: Describes what applies to the data and helps the researchers have drawn conclusions and have generalized to sample of the population.

Inferential Analysis: Research has no meaning unless it draws inferences for the characteristics of the population. Inferential analysis helps to extend the generalization to the entire population from which the sample is drawn. The inferential techniques for testing the hypotheses in the study will be used such as t- tests, two way anova, t- ratio and ω^2 estimate values.

TESTING OF HYPOTHESIS

There is no significant difference in pre and post test scores of Bodily-kinesthetic intelligence for experimental and control groups.

- a. There is no significant difference in pre and post test scores of Bodily-kinesthetic intelligence for experimental group.

Variables: Pre and post test scores of Bodily-kinaesthetic intelligence

Groups: Experimental Group

- b. There is no significant difference in pre and post test scores of Bodily-kinesthetic intelligence for control group.

Variables: Pre and post test scores of Bodily-kinaesthetic intelligence

Groups: Control Group

Table 1 Difference in Pre and Post Test Scores of Bodily-kinaesthetic intelligence for Experimental and Control Groups

Group	Variable	Test	N	df	Mean	SD	t-ratio	Level of significance
Bodily-kinaesthetic intelligence	Experimental	Pre-test	20	38	28.67	4.39	5.15	Significant at 0.01 Level
		Post-test			36.12	4.73		
	Control	Pre-test	20	38	30.14	3.89	2.30	Significant at 0.05 Level
		Post-test			32.96	3.85		

Table 2 Significance difference between the tests when Mean, S.D. and p values, t-ratio are calculated

Group	Tests	N	Mean	S.D	t-ratios	p values	Level of significance
Experimental	Pretest	20	28.67	4.39	5.15	<0.0000	Significant at 0.01 Level
	Posttest		36.12	4.73			
Control	Pretest	20	30.14	3.89	2.30	<0.271	Significant at 0.05 Level
	Posttest		32.96	3.85			

Table no. 2 describes significance difference between the tests when Mean, S.D. and p values, t-ratio are calculated.

EG: N=20, df (N-1) =39, tabulated' values at 0.05 = 2.026 and 0.01 = 2.64

CG: N= 20, df (N-1) =39, tabulated' values at 0.05 = 2.026 and 0.01 = 2.68.

Findings:

Experimental group: t-ratios are significant (t = 5.15) and p < 0.05, therefore the null hypothesis is rejected.

Control group: - t-ratios are significant (t = 2.30) and p < 0.05, therefore the null hypothesis is rejected.

TESTING OF HYPOTHESIS 2

There is no significant difference in the gain scores of Bodily-kinaesthetic intelligence test for experimental and control groups.

Variables: Gain scores of Bodily-kinaesthetic intelligence

Groups: Experimental and Control Groups

Table (Gain scores)

Gain score= post test scores -pre test scores

Differences in Gain scores of Bodily-kinaesthetic intelligence Test for Experimental and Control Groups

Variable	Groups	N	Pre Test Scores	Post Test Scores	Gain scores	Gain score SD	t-ratio	Level of significance
Bodily-kinaesthetic intelligence	Experimental	20	28.67	36.12	7.45	6.33	2.49	Significant at 0.05 Level
	Control	20	30.14	32.96	2.82	5.39		

Observations:

P value and statistical significance:

The two-tailed P value equals 0.0172 By conventional criteria, this difference is considered to be statistically significant.

Confidence interval:

The mean of Group One minus Group Two equals 4.6300
95% confidence interval of this difference: From 0.8666 to 8.3934

Intermediate values used in calculations:

$t = 2.4905$

$df = 38$ standard error of difference = 1.859

Findings and Conclusions:

- From the table, it is seen that for gain scores of Bodily-kinaesthetic intelligence of experimental and control groups the obtained t- ratio is significant at 0.05 level.
- The mean of gain scores of Bodily-kinaesthetic intelligence of experimental group is significantly higher than that of control group.
- Hence it can be inferred that there is a significant difference in the gain scores of Bodily-kinaesthetic intelligence of experimental and control groups.

Interpretation

These findings indicate that the gain scores of experimental and control groups differ significantly. It can thus be inferred that intervention programme organized has helped to develop Bodily-kinaesthetic intelligence in the students of standard VIII of the experimental group.

ω^2 – estimate

- Since t-ratios of gain scores for Bodily-kinaesthetic intelligence are found to be significant hence ω^2 estimate values are computed using the formula.

Table no. - 4.2.2

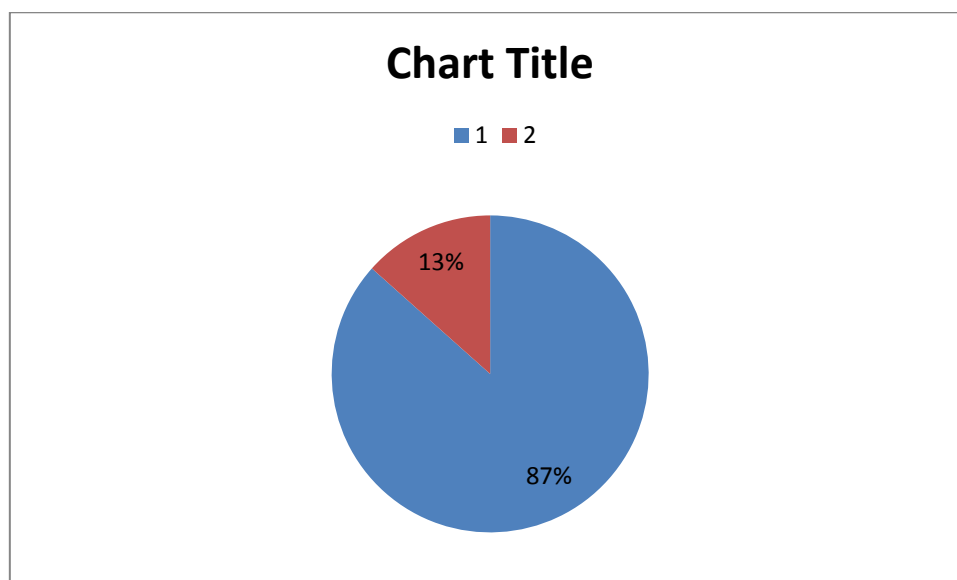
ω^2 - estimate for Bodily-kinaesthetic intelligence of VIII standard students

Variable	t-ratio of Gain scores	ω^2 est	100 ω^2
Verbal-linguistic intelligence	2.49	0.1341	13.41%

From the table it can be said that the ω^2 estimate on variable Bodily-kinaesthetic intelligence is 13.41%.

(Figure No.-4.1)

Pie Chart of Proportion of Variance in Gain Scores of Bodily-kinaesthetic intelligence Due to intervention of the educational programme (Toolkit)



- It can be inferred that the contribution of intervention of the educational programme (Toolkit) in the development of Bodily-kinaesthetic intelligence is 13.41%.

- Thus it can be concluded that the intervention of the educational programme (Toolkit) has helped to enhance Bodily-kinaesthetic intelligence among VIII standard students.

Findings of the study: The mean of gain scores of Bodily-kinaesthetic intelligence of experimental group is significantly higher than that of control group. Hence it can be inferred that there is a significant difference in the gain scores of Bodily-kinaesthetic intelligence of experimental and control groups.

These findings indicate that the gain scores of experimental and control groups differ significantly. It can thus be inferred that intervention programme organized has helped to develop Bodily-kinaesthetic intelligence in the students of standard VIII of the experimental group. It can be inferred that the contribution of intervention of the educational programme (Toolkit) in the development of Bodily-kinaesthetic intelligence is 13.41%. Thus it can be concluded that the intervention of the educational programme (Toolkit) has helped to enhance Bodily-kinaesthetic intelligence among VIII standard students. Yen Chuang Sheng-hsiung Su (2012), found that students' spatial intelligence and logical-mathematical intelligence can be assessed during the game, and their spatial intelligence, logical mathematical intelligence, interpersonal intelligence, and bodily-kinaesthetic intelligence were enhanced. This research also supports that with that bodily-kinaesthetic intelligence can be enhanced with the specially designed tool kit in co scholastic areas of student development.

References:

- Abdallah, Mahmoud Mohammad Sayed. "Multiple Ways to be Smart: Gardener's Theory of Multiple Intelligences and its Educational Implications in English Teaching and Oral Communication." Online Submission (2008).*
- Amstrong Thomas (1999) 7 Kinds of Smart: Identifying and Developing Your Multiple Intelligences, Plume, Penguin Books Ltd. USA, page no.10.*
- Bruce Campbell (2008). Handbook of Differentiated Instruction Using the Multiple Intelligences Lesson Plans & More, Pearson Education, Inc, USA*
- Buschick Mary E., B.S., Shipton Tracey A., B.S., Winner Laurie M., B.S., Wise Melissa D., B.S. (May 2007): Increasing Reading Motivation In Elementary And Middle School Students Through The Use Of Multiple Intelligences. Saint Xavier University & Pearson Achievement Solutions Field-Based Master's Program Chicago, Illinois. ERIC No. ED498926.*
- Davis Linda (2004): Using the Theory of Multiple Intelligences to Increase Fourth Grade Students' Academic Achievement in Science. Nova Southeastern University.*
- Gardner, Howard.(1993) Frames of Mind: The Theory of Multiple Intelligences (20th Anniversary Edition). NY: Basic Books.*
- Lazear, D. G. (1994). Seven pathways of learning: Teaching students and parents about multiple intelligences. Zephyr Press Learning Materials. Page no.7*
- Osman Nafiz Kaya & Jazlin Ebenezer (2006): Invisible Obstacles on the Implementation of Multiple Intelligences Theory in K-8 Classrooms in Turkey: Wayne State University, College of Education, Department of Science Education, Detroit-MI, USA.*

Osman Nafiz Kaya1, Alev Doğan, Nur Gökçek, Ziya Kılıç & Esmâ Kılıç (2007): Comparing Multiple Intelligences Approach with Traditional Teaching on Eight Grade Students' Achievement in and Attitudes toward Science., Wayne State University, College of Education, Department of Science Education, Detroit-MI, USA. Gazi University, Gazi Faculty of Education, Department of Science Education, Ankara, Turkey.

Tsung- Yen Chuang Sheng-hsiung Su (2012) & International Journal of Mobile Learning and Organisation archive, Volume 6 Issue 3/4, October 2012 Pages 204-217