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RESEARCH ARTICLE

POTENTIAL BENEFITS OF WHIZ KID–iCLASS PROGRAMME IN THE DEVELOPMENT OF CHILDREN; AN INITIATIVE TO UNLOCK THE POTENTIAL OF HUMAN BRAIN

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ABSTRACT

Whiz Kid - iclass program is designed to enable students to enhance their intelligence in a stress free environment and to start enjoying the student life aiding in the child development right from the crucial age. The program is enlisted for 3-7 years of age. This 104-hour unique programme is specifically framed for weekend sessions; 2 hours/session, stretching it for a year. It builds a mindset that always delivers when the situation arrives. The in hand research study was conducted in Chandigarh, Panchkula, Hoshiarpur and Jalandhar. The sample was randomly selected that consisted of 200 students between 3 and 7 years of age. The study intends to trace and enhance the natural abilities and learning styles of the children and to groom their cognitive abilities for the development of innate passion and mental faculties at the right age. After the successful completion of the programme, a drastic improvement in the activity marks was noticed. Children were found to engage more actively in practical learning thereby developing Ideation, Innovation and Application. The contemporary action oriented program witnessed tangible results and inevitably elevated the performance of the students after the successful implementation of the programme.

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INTRODUCTION

Whiz Kid - iclass program is a multiple intelligence classroom based training program for children aging between 3 and 7, which would help to increase the retention power and memory skills of children along with fastening their mathematical calculations. It helps to build interest in mathematics. Moreover it enables them to become excellent stage speaker with enhanced confidence and vocabulary. Besides, Personality Development program will boost their self-confidence and groom personality that will have a long lasting impression on others. Cognition involves the thinking skills that children use to make sense of all the general knowledge that they acquire. Cognitive skills enable children to make meanings, patterns, and relationships in their learning, for example, the ability to understand how to count objects in order to pick up five blocks. Among the most basic cognitive skills are perception, attention, imitation, and memory. Children's ability to retain memories increases over time, and they learn strategies to help with remembering, for example, practicing what they want to remember.

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The ability to combine cognitive skills helps children to expand their learning. Children begin to make observations, understand cause and effect, learn intentionally, and use symbolic and representational thinking for reading, writing, mathematics, and other skills. At the same time, children begin developing the ability to see relationships among objects by putting them in order and sorting them by type. As they develop and learn, children also learn to solve problems, think logically, and form explanations. General knowledge has two components. One component includes details about the world and social understandings. The second component is the processes of how things work. An important part of process knowledge that contributes to learning is the idea that a process conducted twice in the same way will have the same result. Cognitive skills and general knowledge are building blocks for school readiness. Cognitive development, along with language and social emotional development, predicts academic outcomes. The child uses intentional strategies to remember, learn, and do, including practice, private speech, planning, and reflecting. The child explores, observes, and compares things about himself and his world using color, size, shape, number, and other characteristics. The child makes predictions, conducts investigations, solves problems, and provides explanations by combining his knowledge and various cognitive skills.

The child acquires and uses knowledge about the world including names and attributes of things, categories, and relationships. This includes the traditional learning areas of mathematics, science, language and literacy, social studies, music, and art. Educational research clearly indicates that there are things early educators can do to increase the amount of cognitive skills and general knowledge children attain. Storytelling is an activity that can transfer emotions and feelings and also can boost thinking capacity. Storytelling instills virtues in child. Children all over the world love listening to stories. They want to know more about their favorite characters and often try to emulate them. Storytelling makes them aware of their own culture and roots, enhances verbal proficiency and improves listening skills: most children usually have a lesser attention span and find it difficult to concentrate on something for long. Listening to a story helps a child imagine the characters, places, plot etc. instead of seeing it on a visual medium. This also enhances creativity, making them more imaginative and open to ideas and free thinking. It also acts as a great tool for sharpening memory, broadens horizon and making academic learning easier. Storytelling helps children in learning the art of better communication and helps to face difficult situations with ease. As much as storytelling is important, it is also important to make sure that it is being told in the right way. A story should neither be too short nor too long.

The place should create the perfect mood and ambiance for storytelling. There has to be a proper introduction. Proper expressions and involvement of children is equally important. Storytelling is extremely important for children especially in the formative years. It's a tradition that has been instrumental in transferring the human culture, wisdom, experiences of survival, do's and don'ts of life, values, sense of humor and poetic perspective, languages and sciences. There is a plethora of fables, mythical, mythological, historical, folk, parables and fictional stories but storyteller is the only inevitable element among all the forms of stories. Few decades ago, the stories were mainly disseminated verbally, and then through printed books. In the modern age, the major dissemination of this internal universe is happening through modern communication media like radio, television, audio, videotapes, films, multimedia CDs and internet in addition to the printed books. The role of storyteller gets fairly articulated in the audio, video and film media but the interactive software can offer greater possibilities due to its interactive nature.

There have been several experiments in television and computer media to allow user participation in the molding and presentation of stories. The following deliberations record the observations of the author and analyze the issues relating to modeling of stories and role development of storyteller for interactive multimedia. Since the computers lack the ability to be imaginative and create stories from nothing, the human input becomes inevitable to provide the elements of story (Fraser, 2000). The cultural, ethnic, and linguistic diversity of the pacific region gives pacific educators an excellent opportunity to enrich children's learning. Diverse points of view, personal histories, prior experiences, and learning styles can be used to greatly enhance teaching and learning. The professional literature suggests numerous ways to design instruction so that all children learn. Storytelling is one way, it costs nothing, is enjoyable, and can be used anywhere and at any time (Zabel, 1991). All people have a basic need to share stories. Stories organize experiences and record important happenings. Stories are of great interest and significance in language and literacy development, especially when considering the increased linguistic and cultural diversity of students in pacific classrooms. Stories enable teachers to learn about their students' cultures, experiences, and meaningful relationships. Through the sharing of stories, teachers and children "create the potential for new connections that link them together inside a new tale" (Dyson andGenishi, 1994). With th

is verbalization, children become the "narrated selves" of their own lives, sharing interpretations with others. Thus stories have interrelated social and evaluative functions (Dyson andGenishi, 1994). The stories we tell help define our socio-cultural landscape in particular ways and demonstrate connections between language, culture, and power (Dakhtin, 1981). Language is important to the learning process, and since children are just acquiring language, early educators must provide the vocabulary and descriptions of children's mathematics and science activities and other projects for them. Conversations and questions are techniques that early educators use, but research shows that educators should also explicitly describe to the children what they observe them doing and ask questions that help a child move to the next level of understanding. In addition, early educators can support and reinforce children's learning by writing what children say about their activities, using photos and work samples to help children remember what they have done, and recording key points that have been learned in their math and science activities.

Yoga seems to bestow mental benefits, such as a calmer, more relaxed mind. Now research by Chantal Villemure and Catherine Bushnell of the National Center for Complementary and Alternative Medicine in Bethesda, Md., explains how. Using MRI scans, Villemure detected more gray matter—brain cells—in certain brain areas in people who regularly practiced yoga, as compared with control subjects. Yogis had larger brain volume in the somatosensory cortex, which contains a mental map of our body, the superior parietal cortex, involved in directing attention, and the visual cortex, which Villemure postulates might have been bolstered by visualization techniques. The hippocampus, a region critical to dampening stress, was also enlarged in practitioners, as were the precuneus and the posterior cingulate cortex, areas key to our concept of self. All these brain areas could be engaged by elements of yoga practice. Children often face very challenging environments in their everyday life which can be stressful, uncertain, and emotionally demanding. Science has shown, and educators have experienced first-hand, that when children are anxious, stressed, distracted or unbalanced it is nearly impossible for them to learn. A calm and present state of mind is a prerequisite for children to be psychologically and physiologically ready for learning. Yoga is increasingly proving to be a great way to achieve this state of mind, and work towards the goals of stress reduction, self-regulation, and better ability to focus and sustain attention necessary for

learning. The neuroscience of child development research highlights that excessive stress damages the developing brain architecture, leading to vulnerability to lifelong problems in learning, behavior and overall health. Yoga can help cultivate a set of mental skills central to the aims of education in 21st century: self-regulation, pro-social dispositions, mastery and positive attitude towards academic success. Scientific evidence is accumulating that yoga and mindfulness training is an effective and cost-efficient way to promote healthy brain development and function, and to foster stress resilience. According to the most recent research, self-regulation is strongly predictive of school readiness as it allows children better to adapt to classroom demands, such as sitting still, sustaining both attention and motivation toward a task, and using creative problem-solving skills, as well as allowing children to learn in a more mindful, reflective fashion. In line with core goals of social-emotional learning, short but regular formal yoga and mindfulness training exercises, combined with informal mindfulness awareness practices, can strengthen children's innate capacities for being mindful to any experience in ways that are responsive rather than reactive and reflexive.

Children are the primary consumers of media platforms (Rideout, Foehr, Roberts 2010). With the development of media technology and information transfer, children now have the possibility to access media everywhere, at any given time, starting from very small ages. Even though they now have the chance to enrich their knowledge using technology, this is thought to be having a more negative impact on their behavior on different levels, including aggression, pro social behavior and cognitive skills (Davidson 1979). One of the key innovations that educational technology has made available is new forms of representations, such as animation, multimedia, and virtual reality. Animations are a form of dynamic representation that display processes that change over time. Animations are used for a variety of reasons across a whole range of topics. They are often utilized when there is a need to show learners something not easily seen in the real world. More abstract representations can also be used to represent phenomena that are not inherently visual. If an animation focuses on one aspect of the event, then learners may make erroneous inferences about what is happening in the unviewed aspect of the animation. Schnotz (e.g., Schnotz and Rasch, 2005) discusses two ways that animations might facilitate cognitive processing.

The first he calls the enabling function of animation. Animations can provide additional information that cannot be displayed in pictures. This additional information allows for additional cognitive processing. The second is referred to as the facilitating function. Animations are able to help learners build dynamic mental models of situations by providing external support. In this way animations make cognitive processing easier. Cognitive Load Theory (e.g., Sweller, Van Merriënboer, and Pass, 1998) pays specific attention to the way that memory resources are used in learning and it has been applied to research on learning with animation (e.g., Ayres and Paas, in press). There is a long tradition of considering the role of motor actions in educational and developmental theories more generally. Piaget (e.g., Piaget and Inhelder, 1969) believed that motor actions formed the basis of all learning. Infants begin with only sensorimotor representations, (at birth just simple reflexes, to deliberate sensorimotor actions to achieve effects in the world by two years). Only as children develop do they come to understand symbolic representations at first concretely and finally at eleven years they can master formal operations on abstract symbols. For Piaget, using one's body to imitate a phenomenon is fundamental to the latter development of mental symbols to stand for the phenomena. Bruner (e.g., Bruner, 1966) also emphasized the role of action as learning is seen as progressing through enactive stages when knowledge is acquired and stored by actively engaging in manipulating objects through to iconic (mental representation of the objects) and then symbolic representations.

The expressive characteristics of animations resulted from the need to represent activities in a specific sequence. This could be advantageous for learners when the dynamic activity represented does need to be understood as one fully determined sequence but problematic when this is not the case. An analysis of cognitive, motor and perceptual consequences of learning with animations showed that while they may make dynamic information explicit, which should reduce the amount of cognitive effort required to learn about dynamic systems, they also introduce significant problems for perceptual processing and memory because of their transient nature. Affective accounts of learning with animations suggest that although learners may often report increased satisfaction and motivation as a result of using animations, this is not invariably the case. The strategies that learners use when studying with animations are crucial for their ultimate understanding.

The first five years matter and last a lifetime. The development of our brain determines the child as a whole. It is dependent upon the presence, pattern, frequency, quality and timing of experiences, good and bad. Although all brains have similar basic structures, the size, organization and functioning varies and changes over one's lifespan, according to each individual's genes, environment and experience. Neuroscience is providing unequivocal evidence that the brain physically changes, increasing and strengthening the neural connections through repetitive experience (McCain *et al*., 2007:19). The brain develops through use. It relies on sensory bathing. At birth, most of a person's neurons have been generated, but most are not connected in networks. Brain development is about forming and reinforcing the connections (Shore, 1997). By the age of four years, a child's brain can be 90% adult size. It is an ever-changing biological system, although no part of the brain will change unless it is activated by stimulation from the environment (Perry, 2000).

The brain is most sensitive to environmental input while it is developing and therefore variance in experience at an early age has more impact than later in life. Children's sensory experiences (sight, hearing, touch, taste, smell, and movement) stimulate neural activity that differentiates and creates the complex nerve networks that are key for optimum development in early life (Cynader and Mustard, 1998), (Mustard, 2008). Children learn through being engaged and taking up the tasks.

The development of maps of representations in particular areas of the brain depends on experience. Experience that is repetitive, patterned and consistent will be represented by strong neural connections. Play is usually an enjoyable activity and hence encourages engagement and repetition leading to mastery and a sense of accomplishment and confidence. Play engages children's attention, providing challenge, observation and opportunities for practice and success in the development of skills, creative problem solving, concepts and relationships (Perry, 2000). It is likely that 'pretend play' engages many areas of the brain because it involves emotion, cognition including executive functions, language, and sensorimotor actions and hence it is suggested that it promotes the development of dense synaptic connections (Bergen and Coscia in Bergen, 2002).

Neuroscientists assert that children learn skills through practice/trial and error and observation /imitation. It has been found that more than half of children entering school do so without sufficient levels of social-emotional and cognitive self regulation (Bodrova in Zaslow and Martinez-Beck, 2005). Children learn language by listening to it and using it. Experience is the catalyst for language acquisition. There is strong evidence that reading and talking in early childhood has a significant effect on language skills at later stages of development (Brewin in McCain *et al*., 2007; Hart and Risley, 2003). Geake (2009:129) asserts that for 95% of infants, it is children's linguistic environment that makes the difference in verbal abilities in their early years. Similarly, Mustard (2008) reports that the extent of children's language exposure in the early years has a significant effect on the verbal skills of children by age three.

Hart and Risley (2003) have found huge differences in the vocabulary size of young children related to social class correlated with the quantity of early family language experience (the amount and frequency of interaction between parents and children). These early differences translated into striking disparities in the children's later vocabulary growth rate, vocabulary use, and IQ test scores all of which are critical for success at school and in the workplace. These findings concur with the assertion of Snow (2006) that vocabulary is one of the most robust long term predictors of good literacy development.

MATERIALS AND METHODS

Whiz Kid - iclass is a research based training program that helps children build those skills which are most crucial for a successful life. The first step included sample selection and then, rapport was formed with the subjects. The parents/guardians were explained the programme in detail, along with its importance. The program is designed for children of 3-7 years of age. The sample was randomly selected from Chandigarh, Panchkula, Hoshiarpur and Jalandhar. In total, 200 students were selected, 40 students of each age. Pre admission Activity Marks were taken, following which the standardized weekend i-Class Training program was delivered by a certified i-Coach. The programme was impartedon weekends, 2 hours per session, making a total of 104 hours per student following the set scientific criteria. Later, the quarterly and a final assessment was carried out to trace the Potential benefits of Whiz Kid–iclass programme in the development of Children. The study intends to trace and enhance the natural abilities and learning styles of the children and to groom their cognitive abilities for the overall development of students.

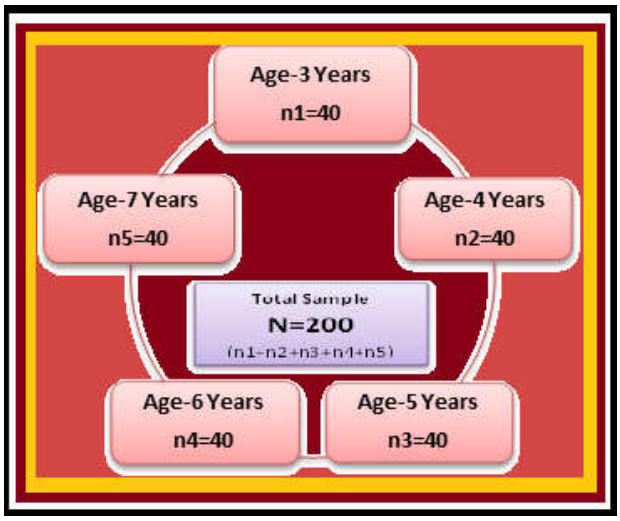

Fig.1. Sampling Procedure

STATISTICAL ANALYSIS

Once the data was obtained, it was coded, tabulated and analyzed, keeping in mind the objectives of the study. Appropriate statistical tools were used to draw meaningful inferences. The statistical tools used in the present study are given in the table below;

RESULTS AND DISCUSSION

There is no doubt that after the successful completion of the programme, a drastic improvement in the activity marks was noticed among the 3 year olds and they were witnessed to perform significantly better. The statistical analysis affirmed the significant surge in their Activity Marks after attending the programme. It can be ascertained through the figures that the 4 year old children were found to engage more actively in practical learning thereby developing ideation, innovation and application. Consequently, an extremely significant rise was recorded after completion of the said programme.

The contemporary action oriented program witnessed tangible results and inevitably elevated the performance of the 5 year old students after the successful implementation of the programme. It could not be more obvious that the 6 year old students performed significantly better after the completion of the programme. The Activity marks surged as the programme graded. It is self-evident that Post-programme activity marks of 7 year olds were extremely higher than their performance in pre admission activity It is apparent that as the Pre-Admission and Post-Programme Activity Marks of Students were analyzed, it was notified that the Post-Programme performance of all the students in all the age groups out figured their performance in the pre admission assessment.

Table 1. Statistical tools used for analysis of data

S.No.	Statistical tools	Formula	Purpose
1.	Mean (x)	$X = \Sigma X/N$ where, X = Variable N = No. of sample	To find out the average scores of variable used in the study.
2	Standard Deviation (S.D.)	$0 = \sqrt{\Sigma x / N}$ Where X = Deviation from actual mean X = mean. X = variable. N = number of samples.	To find out deviation from the mean scores of the variables.
3.	Standard error of mean (S.E)	S.E = 0/n Where 0 = S.D. n= number of observations	To find out the degree to which the mean is affected by the error of measurement and sampling.
4.	't' test	$t = (x1-x2) / S \sqrt{n1n2/n1 + n2}$ where x1 = mean of 1st sample x2 = mean of second sample S = combine S.D. n1 = number of observations in 1st sample. n2 = number of observations in 2nd sample	To compare the average score of any two groups or to find out whether the mean of the two samples vary significantly from each other.

Performance of 3 years old students

Table 2. Activity Marks of 3 Year olds in the five stages

Age	PA	Q-1	Q-2	Q-3	Q-4
3 Years	54.93333	67.36667	68.4	71.53333	73

Table 3. Difference in the Mean Standard deviation, standard error, t-values and level of Significance of Pre-Admission and Post-Programme performance of 3 year olds

Activity Marks		N	MEAN	SD	SEM	t - value	P-value	Lev. of sig.
3 Years	Pre-Admission	40	54.93	12.56	1.98	6.9728	<0.0001	Extremely Statistically Significant
	Post-Programme	40	73	10.53	1.66			

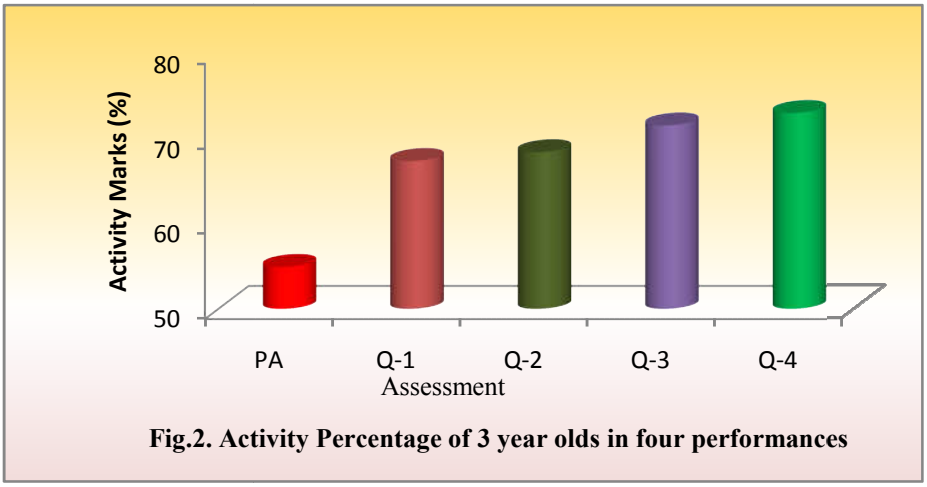

Fig.2. Activity Percentage of 3 year olds in four performances

Performance of 4 years old students

Table 4. Activity Marks of 4 Year olds in the five stages

Age	PA	Q-1	Q-2	Q-3	Q-4
4 Years	50.71429	62.42857	64.7619	67.52381	68.71429

Table 5. Difference in the Mean Standard deviation, standard error, t-values and level of Significance of Pre-Admission and Post-Programme performance of 4 year olds

Activity Marks		N	MEAN	SD	SEM	t - value	P-value	Lev. of sig.
4 Years	Pre-Admission	40	50.71	8.65	1.36	9.41	<0.0001	Extremely Statistically Significant
	Post-Programme	40	68.71	8.45	1.33			

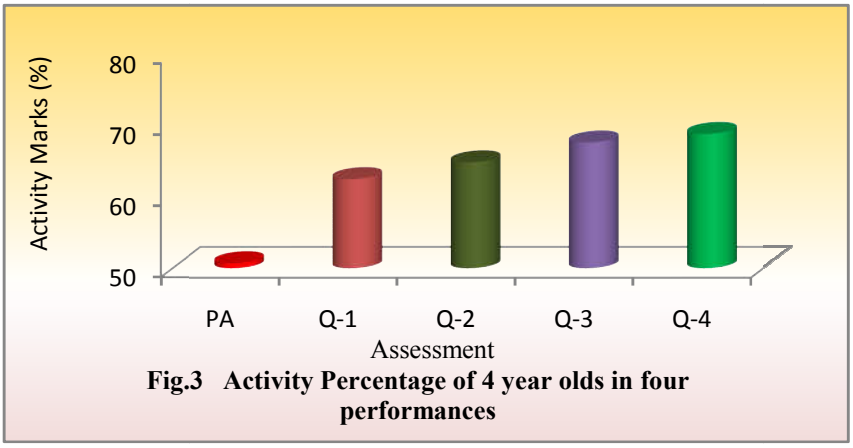

Fig.3 Activity Percentage of 4 year olds in four performances

Performance of 5 years old students

Table 6. Activity Marks of 5 Year olds in the five stages

Age	PA	Q-1	Q-2	Q-3	Q-4
5 Years	59.11111	71.11111	72.44444	78.55556	78.05556

Table 7. Difference in the Mean Standard deviation, standard error, t-values and level of Significance of Pre-Admission and Post-Programme performance of 5 year olds

Activity Marks		N	MEAN	SD	SEM	t - value	P-value	Lev. of sig.
5 Years	Pre-Admission	40	59.11	15.64	2.47	6.69	<0.0001	Extremely Statistically Significant
	Post-Programme	40	78.05	8.69	1.37			

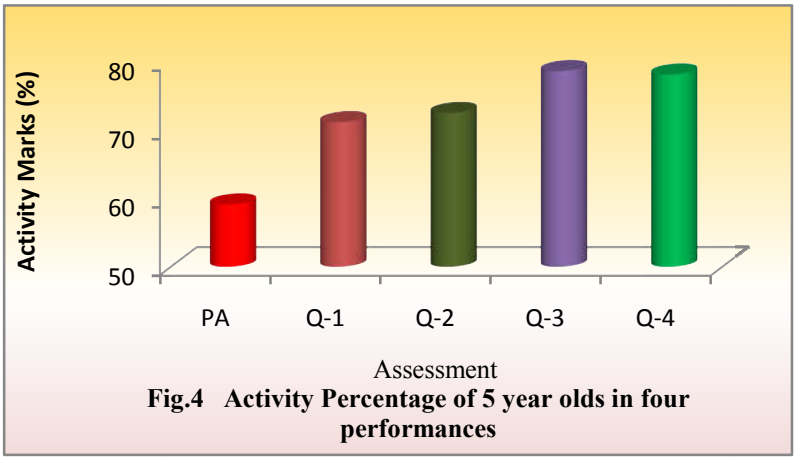

Fig.4 Activity Percentage of 5 year olds in four performances

Performance of 6 years old students

Table 8. Activity Marks of 6 Year olds in the five stages

Age	PA	Q-1	Q-2	Q-3	Q-4
6 Years	55.26087	67.56522	69	72.6087	73.43478

Table 9. Difference in the Mean Standard deviation, standard error, t-values and level of Significance of Pre-Admission and Post-Programme performance of 6 year olds

Activity Marks		N	MEAN	SD	SEM	t - value	P-value	Lev. of sig.
6 Years	Pre-Admission	40	55.26	9.6	1.51	9.89	<0.0001	Extremely Statistically Significant
	Post-Programme	40	73.43	6.54	1.03			

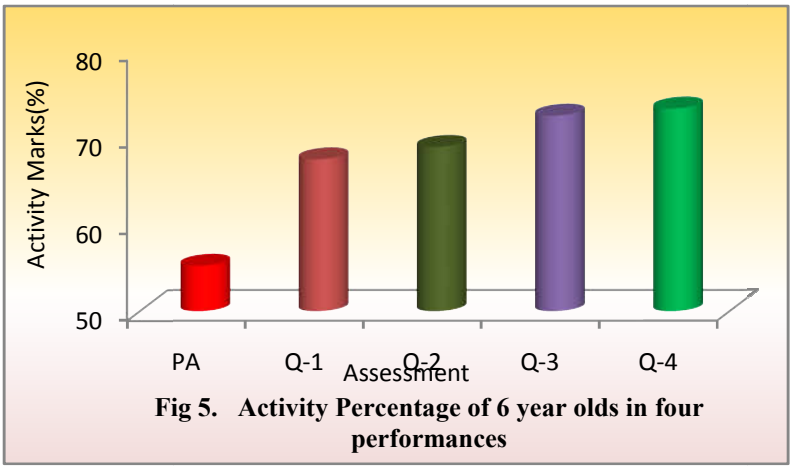

Fig 5. Activity Percentage of 6 year olds in four performances

Performance of 7 years old students

Table 10. Activity Marks of 7 Year olds in the five stages

Age	PA	Q-1	Q-2	Q-3	Q-4
7 Years	52.52381	64.80952	66.2381	69.90476	71.04762

Table 11. Difference in the Mean Standard deviation, standard error, t-values and level of Significance of Pre-Admission and Post-Programme performance of 7 year olds

Activity Marks		N	MEAN	SD	SEM	t - value	P-value	Lev. of sig.
7 Years	Pre-Admission	40	52.52	10.58	1.67	8.55	<0.0001	Extremely Statistically Significant
	Post-Programme	40	71.04	8.68	1.37			

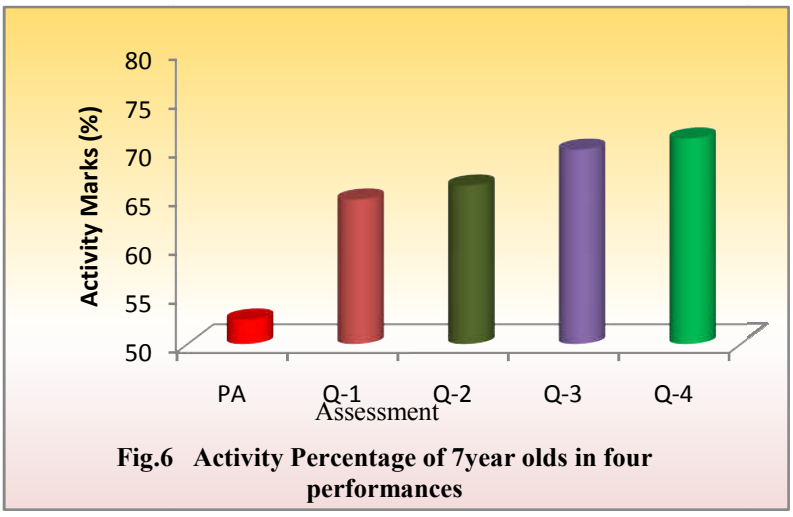

Fig.6 Activity Percentage of 7year olds in four performances

Performance of students in Pre-Admission and Post-Programme Activity Test

Table 12. Pre-Admission and Post-Programme Activity Marks of Students

Age	Pre-Admission	Post-Programme
3 Years	54.93333	73
4 Years	50.71429	68.71429
5 Years	59.11111	78.05556
6 Years	55.26087	73.43478
7 Years	52.52381	71.04762

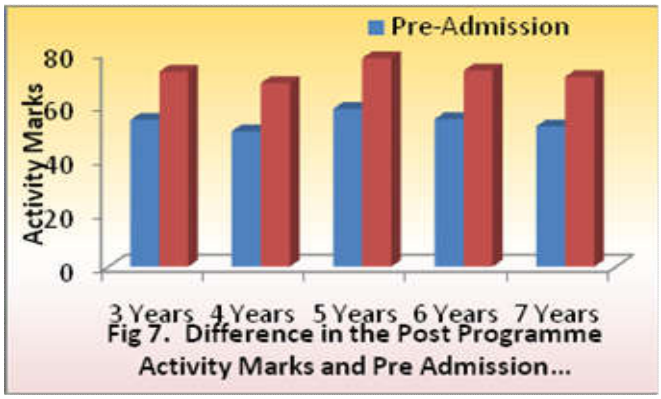

Fig 7. Difference in the Post Programme Activity Marks and Pre Admission...

Table 13. Percentage Improvement after the Programme

Age	Percentage Improvement
3 Years	32.88835
4 Years	35.49296
5 Years	32.04887
6 Years	32.88749
7 Years	35.26745

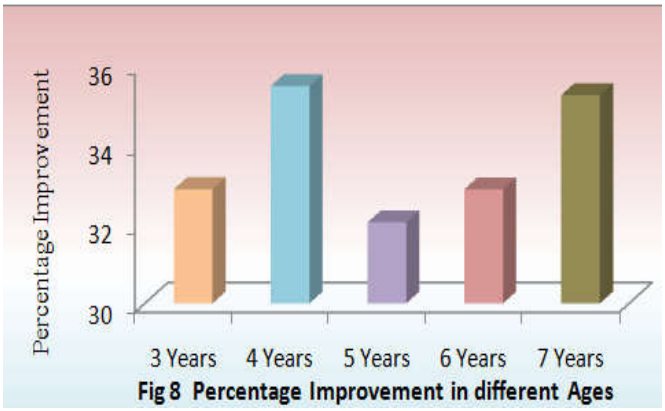

Fig 8 Percentage Improvement in different Ages

Percentage Improvement among Students after Successful completion of iclass Whiz Kid Programme

The evidence suggests that students of all the ages improved their performance after the successful completion of the iclass Whiz Kid Programme. The percentage improvement was found to be maximum among 4 year old students, followed by 7 year old students.

Conclusion

In conclusion, i-Class is a scientific process to keep a child 'Stay Smart Forever'. Children when identified and nurtured early in the age perform to the potential. i-Class trains to unlock the potential of human brain based on Cognitive Science Education Technology. It was notified that the subjects gained a quick learning process, character of adaptability, decisiveness, conviction, openness, reasoning, critical thinking ability, became more action oriented, innovative andwere found to perform at a time whenever the situation demands. The activity marks of all the age groups enhanced drastically after the successful completion of the iclass Whiz Kid Programme.

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