Paper on
Chess in schools for the blind

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Background

I am involved in promoting the game of chess amongst the blind from last 23 years. I have closely associated with All India Chess Federation for the Blind (AICFB from it's inception), I am the founder of this organisation. My contribution to chess for the blind is in India mainly through AICFB and its activities. I am also fortunate enough to be part of International Braille Chess Association (IBCA) through which I was able to understand the international scenario of chess for the blind which has helped me to decide the future road-map Indian chess.

In last 23 years I have involved in several promotional activities for chess for the blind such as conducting state, zonal, national and International level tournaments, organizing coaching camps, encouraging the participation in the tournaments with sighted compiling chess books, technological developments, production of DAISY and Braille chess books etc for the blind. I have also taken the responsibilities of creating more and more chess players and improve their standard of the game in these years. Chess has played an important role in my life. I strongly feel that whatever I am today is because of chess. Chess has given me huge confidence, the sense of equality, help me to look at life differently and most importantly gave me the mission of my life. This is the reason of my involvement in promoting chess amongst the blind. That's why I strongly advocate; each and every blind person should learn and play chess.

Last 13 years I was involved in developing the model for implementing my ambitious program "Chess in schools". This paper will give you the brief overview of benefits, implementation methodology, processes and IT system of this program. I propose to promote and implement this program through my organization "All India Chess Federation For The Blind". I am grateful to each and every one who has helped and supported me in making this program as reality.

Program Implementation Partners:

Promoter,
All India Chess Federation For The Blind
Content By,

- Foundation of Chess Study and Research

Technology support and implementation,

- Indian Institute of Assistive Technology

Chess in schools for the blind

Chess is a learning tool that just happens to be a game

Chess is a classic game of strategy, invented more than 1500 years ago in India. In the centuries since its invention, chess has spread to every country in the world. In all over world, it has also received endorsement by many educators and researchers. The word is out: Chess improves logical thinking skills. Studies demonstrate that math and reading scores improve when students learn chess. Thousands of sighted children are involved in chess training; many local, state and national tournaments draw from 300 up to over 2000 children each year.

In India chess is growing very fast since 1990. More and more children are learning chess in systematic way. Result of this, in schools across the country, chess is making a strong contribution to sighted children's learning across academic areas. Chess is a learning tool that just happens to be a game.

Chess - Relevance to the visually impaired

Chess is particularly relevant for visually impaired person. It is the only game that the visually impaired can play against the sighted on an equal footing. In fact, visually impaired players have pitted their wits against sighted players in open tournaments and have acquitted themselves very well.

Chess provides an opportunity for the visually impaired persons to prove that they can match the sighted, if not do better. Given the right exposure to tournaments, the accessibility to study material and computers (which the sighted have access to), visually impaired can outperform the sighted in this game.

Purpose

The objective is giving a blind individual the confidence to compete with their sighted counter part in each aspects of the life.

To achieve this, teaching chess from young age is very essential. The best way to reach to young children is to teach chess in schools for the blind from which the concept of “Chess in school” came in my mind in 1996. The need was to teach the chess in systematic way and should be able to implement and monitor the program in every corner of India. But unfortunately that period was not suitable for implement such a mega program. The scenario of Indian chess for the blind that time was very different compare to today’s scenario. India was not having a dedicated national level chess federation for the blind, chess activities were concentrated in few parts of the country and lack of awareness chess was not on priority for bigger organization. Today the situation is different; we have strong federation in form of AICFB, strong network of state level bodies, technological support and awareness about the importance of chess. To

successfully implement this program, the need is to have a framework for implementation.

Benefits

Chess is the only game where a blind person can play at par with his sighted counter part but even out perform them. This has been proved now and again in last 20 years in India in that matter at all over world. We are promoting this game because it gives us equal opportunity but there are lots of other benefits of chess.

Studies conducted over the 30 years show that students' IQs increase and test scores improve after less than a year of systematic chess study.

Chess is:

- Fun and motivational, turning problem-solving into a game
- A thinking game, encouraging students to use patterns and logical deductive reasoning to solve problems.

Chess Develops and Improves:
• Memory and concentration
• The capacity to predict consequences.
• Self-esteem, builds team spirit and increases concentration

We are planning to bring chess in schools for the blind because we believe it directly contributes to academic performance and their personality development. Chess makes kids smarter.

It does so by teaching the following skills:
Focusing, Visualizing, Thinking Ahead, Weighing Option, Analyzing Concretely, Thinking Abstractly, Planning and Juggling Multiple Considerations Simultaneously,

None of these skills are specific to chess, but they are all part of the game. The beauty of chess as a teaching tool is that it stimulates children's minds and helps them to build these skills while enjoying themselves. As a result, children become more critical thinkers, better problem solvers, and more independent decision makers.

All these skills are very important for being successful. I want our blind children should be able to compete with their sighted counter part in every aspect of the life. Technology has played the revolutionary role in bridging the gaps. These skills and technology will help blind persons to face any challenges and excel in their respective career.

Why Offer Chess in Schools?

Academic Benefits

We have planning to bring chess in schools because we believe it directly contributes to academic performance. Chess makes kids smarter. It does so by teaching the following skills:

Focusing: Children are taught the benefits of observing carefully and concentrating. If they don't watch what is happening, they can't respond to it, no matter how smart they are.

Visualizing: Children are prompted to imagine a sequence of actions before it happens. We actually strengthen the ability to visualize by training them to shift the pieces in their mind, first one, then several moves ahead.

Thinking Ahead: Children are taught to think first, then act. We teach them to ask themselves "If I do this, what might happen then, and how can I respond?" Over time, chess helps develop patience and thoughtfulness.

Weighing Option's: Children are taught that they don't have to do the first thing that pops into their mind. They learn to identify alternatives and consider the pros and cons of various actions.

Analyze Concretely: Children learn to evaluate the results of specific actions and sequences. Does this sequence help me or hurt me? Decisions are better when guided by logic, rather than just by impulse.

Thinking Abstractly: Children are taught to step back periodically from details and consider the bigger picture. They also learn to take patterns used in one context and apply them to different, but related situations.

Planning: Children are taught to develop longer range goals and take steps toward bringing them about. They are also taught of the need to reevaluate their plans as new developments change the situation.

Evaluation of multiple considerations simultaneously: Children are encouraged not to become overly absorbed in any one consideration, but to try to weigh various factors all at once.

None of these skills are specific to chess, but they are all part of the game. The beauty of chess as a teaching tool is that it stimulates children's minds and helps them to build these skills while enjoying themselves. As a result, children become more critical thinkers, better problem solvers, and more independent decision makers.

Research

These conclusions have been backed up by educational research. Studies have been done in various countries in the world, showing that chess results in increased scores on standardized tests for both reading and math. A study on a large scale chess program in New York City, which involved more than 100 schools and 3,000 children, showed higher classroom grades in both English and Maths for children involved in chess.

Studies in Houston, Texas and Bradford, Pennsylvania showed chess leads to higher scores on the Watson Glaser Critical Thinking Appraisal and the Torrance Tests of Creative Thinking.

Social Benefits

Playing chess with friends
In the schools, chess often serves as a bridge, bringing together children of different ages, races and genders in an activity they can all enjoy. Chess helps build individual friendships and also school spirit when children compete together as teams against other schools. Chess also teaches children about sportsmanship - how to win graciously and not give up when encountering defeat. For children with adjustment issues, there are many examples where chess has led to increased motivation, improved behavior, better self-image, and even improved attendance. Chess provides a positive social outlet, a wholesome recreational activity that can be easily learned and enjoyed at any age.

Why does chess have this impact?

Why did chess players score higher on the Tests of Creative Thinking as well as the Critical Thinking Appraisal? Briefly, there appear to be at least seven significant factors:
1) Chess accommodates all modality strengths.
2) Chess provides a far greater quantity of problems for practice.
3) Chess offers immediate punishments and rewards for problem solving.
4) Chess creates a pattern or thinking system that, when used faithfully, breeds success. The chess-playing students had become accustomed to looking for more and different alternatives, which resulted in higher scores in fluency and originality.
5) Competition. Competition fosters interest, promotes mental alertness, challenges all students, and elicits the highest levels of achievement (Stephan, 1988).
6) A learning environment organized around games has a positive affect on students' attitudes toward learning. This affective dimension acts as a facilitator of cognitive achievement (Allen & Main, 1976). Instructional gaming is one of the most motivational tools in the good teacher's repertoire. Children love games. Chess motivates them to become willing problem solvers and spend hours quietly immersed in logical thinking. These same young people often cannot sit still for fifteen minutes in the traditional classroom.
7) Chess supplies a variety and quality of problems. As Langen (1992) states: "The problems that arise in the 70-90 positions of the average chess game are, moreover, new. Contexts are familiar, themes repeat, but game positions never do. This makes chess good grist for the problem-solving mill.

Framework for chess in schools

Implementation methodology

A. Classroom / Virtual Classroom base training

Three levels:

Beginners

- This course is divided in three parts
- Duration of first two parts is Six months each
- Third part is for one year
- Any Individual can join this course
- Classroom base training will be provided
- Study material will be provided in Braille and Digital Talking Book (DTB) format
- After six month of training student can participate in the tournament

Target:

- Student should play at least three tournament in two years
- Student should able to achieve the FIDE rating between 1600 to 1800

Intermediate

- Duration of course is two years
- Total 100 sessions, one session per week
- Training can be provided in classroom or virtual classroom (Audio-video conference)
- Individual having rating between 1600-1800 or equivalent strength can join this course
- Study material will be provided in Digital Talking Book (DTB) format
- Other reference material will be provided in DTB or software format
- Talk64 (chess software with speech) will be provided to the student

Target:

- Student should play at least three rating tournament in a year
- Student should able to achieve the FIDE rating between 1800 to 2000

Expert

- Duration of course is two years
- Total 100 sessions, one session per week
- Training can be provided in classroom or virtual classroom (audio-video conference)

- Individual having rating between 1800-2000 or equivalent strength can join this course
- Study material will be provided in Digital Talking Book (DTB) format
- Other reference material will be provided in DTB or software format
- Membership of on line training portal will be offered to the student

Target:

- Student should play at least three rating tournament in a year
- Student should able to achieve the FIDE rating between 2000 to 2200

Features

Duration of each level is two years

- Model can be implemented in schools, academies, training institutes or any organization which has having sufficient infrastructure for implementation
- Any interested individual can enroll for chess education
- Children above 5 years can enroll for Beginners level
- Beginner level training will be classroom base training
- Intermediate and expert level training can be given classroom base or online(virtual classroom or training portal)
- Training based on syllabus
- Training comprise of theory and practicals
- Study materials will be provided in Braille, audio and software format
- Monitoring and implementation of the program will be done with the help of web base IT System
- Assessments of the coaches and students will be carried out quarterly
- Assessments of the schools, academies and organizations will be carried out half yearly
- Profile of the students will be created after every assessment and consolidated profile of the student will be kept in the central repository
- After successfully completing each level, student will get the certificate
- Students performance, style of play, strengths and weaknesses will be stored in the central repository for further analysis
- Individual base plan for improvement will be derived after analysis of this data
- After completion of all the level students will be selected based on their performance and Groom these players for their future career
- Outstanding players can be adopted for long period and prepare them for world chess championships

B. On line training (WBT)

Types of training will be available:

Intermediate level (WBT)

- Duration of course is two years
- Individual having rating between 1600-1800 or equivalent strength can join this course

Target:

- Student should play at least three rating tournament in a year
- Student should able to achieve the FIDE rating between 1800 to 2000

Expert level (WBT)

- **Duration of course is two years**
- Individual having rating between 1800-2000 or equivalent strength can join this course

Target:

- Student should play at least three rating tournament in a year
- Student should able to achieve the FIDE rating between 2000 to 2200

Theme base training (WBT)
Interactive short courses based on themes (Virtual classroom)
Refresher courses (WBT)

Features:

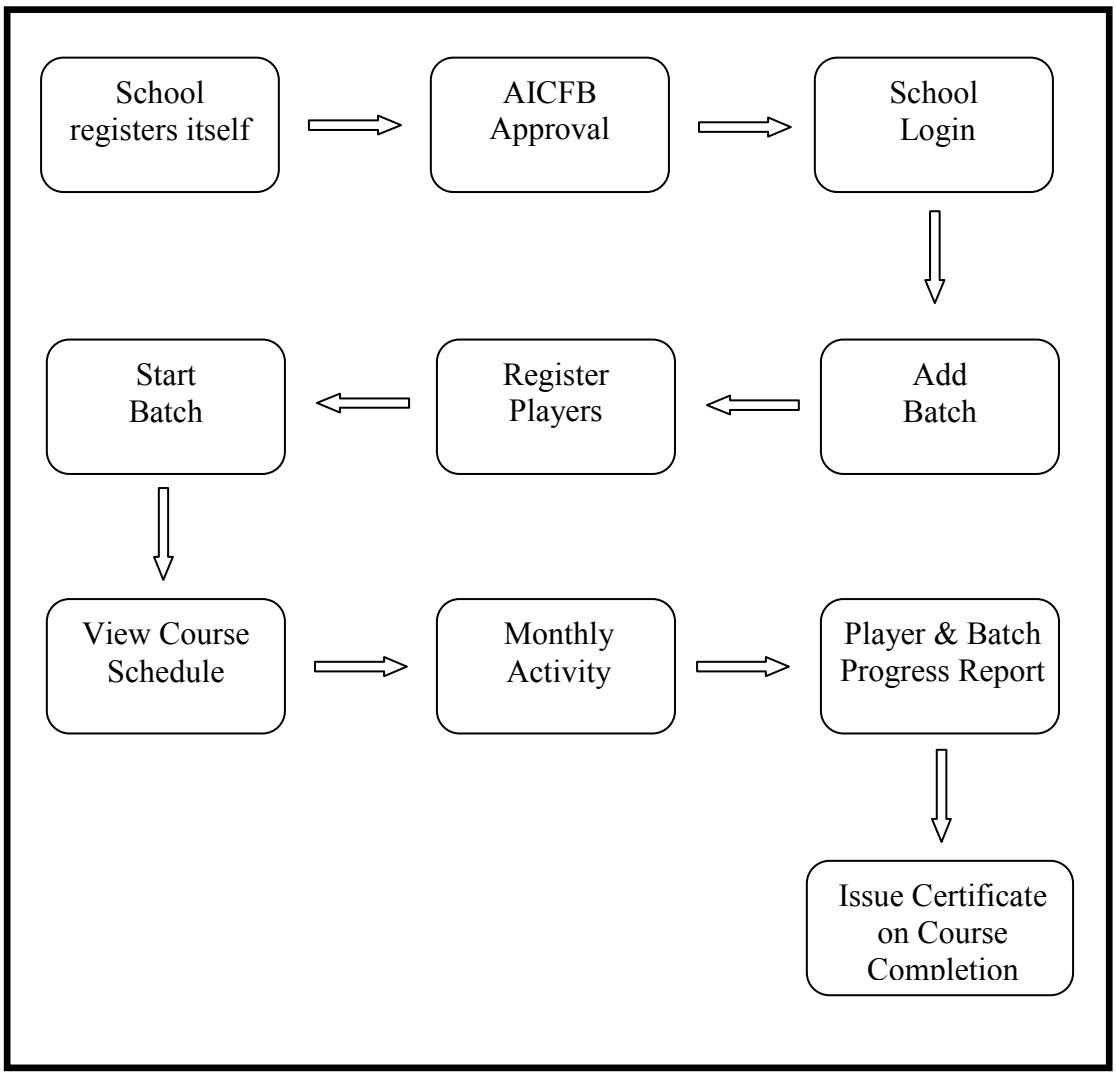
- Training will be given through Online chess training portal
- Intermediate and Expert level training will be provided as web base training (WBT)
- Individuals who are not associated with schools, academies or organizations can enroll for the courses
- The student who have undergone Beginner, Intermediate and expert level course also can use the portal for Refresher course WBT
- In addiction to all above courses, Them base training modules will be available
- Some of the theme base training can be provided through Virtual classroom as interactive sessions
- Audio-videos lectures by prominent chess players will be available in portal
- Reference material in DAISY and html format will be provided to the students
- Online playing facilities will be available practice sessions
- Online forum will be available for clarifying doubts
- Performance will be tracked through WBT and quarterly evaluation will be done by experts and plan for improvement will be communicated to the students.

- Infrastructure requirements
  - Specially design chess boards
  - Syllabus in Braille and DTB format
  - Reference material in DAISY format
  - Lectures in audio-videos format
  - Digitize chess course
- IT systems
- Chess software with speech: “Talk64” Specially designed chess software for the blind
  - Online Chess training portal
  - Portal for chess in schools for monitoring and implementation
  - DAISY production software
  - DAISY reader software
  - Internet base audio conference system
- Hardware
  - Two computers in each school with internet connection
  - DAISY/MP3 players for each student
  - Digital/tape recorder for recording games

Process and IT System for monitoring and implementation

Process

Process Flow Diagram



Functionality of IT System for chess in schools for the blind

1) **Login Screen:** All the users of this site need to register with valid login credential. Based n their roles, the access to different modules will be given.

2) **Add School:** This screen is open for any school to fill out its details and get registered for the “Chess in School” program. The school needs to fill its details, a representative’s information, details of the facilities available with it and details of the Coach if it already has one. The request goes to Program director and on approval, an id is created for the school.

3) **Register Player:** This screen will provide features to a coach/school to add a player when player enrolls for this program. The details of the player will be entered and he can be added to any previously created batch or a new batch can be formed.

4) **Start Batch:** This screen is for the school to initiate a Batch when it feels that the required strength of players & coach is available. On selecting the Batch name, the Batch details such as no. of players registered and the coach name will be displayed and the actual start date will be asked. On submitting it, the schedule of the course will be prepared accordingly.

5) **View Course Schedule:** This screen will enable the user to view the whole syllabus of the program along with the schedule of various topics to be completed for a particular batch.

6) **Monthly Activity:** The screen allows the coach to view the scheduled topics for the current month and change their status to Completed or Pending and update it on a monthly basis.

7) **Player Report:** A concise report is generated on the screen when the registration number of the player is entered. The report displays the information of the player along with the assignments completed or missed.

8) **Batch Report:** This screen generates a report for any batch and displays what all topics were completed on time or are pending for completion.

References

Educational Research
Sara Livsey 1

Chess in Education Research Summary.
Compiled by Dr. Robert Ferguson

Why Offer Chess in Schools?
By Chess master Jerry Meyers

Appendix

A. How do Visually Impaired persons play Chess?

The Chess Board of 64 squares has the following modifications:

1) All the Black squares are raised about 2-3 mm above the white squares. By feeling the squares, the player is able to determine whether the square is a black or a white one.
2) Each of the squares on the Board has a hole in the center so that the pieces can be fixed in these holes.
3) Each of the pieces has a downward projection (nail) at the base, which fits into the hole in the squares on the Board, thereby fixing the piece securely on the board.
4) All the Black pieces have a pin fixed on their heads helping the player distinguish between a white and a black piece.

The players therefore, by feeling the raised or the lowered squares can figure out whether the piece is on a black or a white square. By feeling the shape of the pieces, they can determine whether the piece is a Pawn, Rook, Bishop, Knight, Queen or King. The touch of the pin on the pieces helps the player from distinguishing a white piece from a black one. The player is therefore able to have a clear picture in his mind of the position on the Board. He is now ready to take on any opponent, sighted or otherwise.

After making every move, the visually impaired person is required to announce the move aloud, so that his opponent comes to know of the move. Instead of writing the moves on a Score Sheet, the visually impaired player writes the moves in Braille or records the moves on a recorder.

B. TALK64 chess software with speech

First of its kind in the world
(Specially designed for the blind)
Brain child of: Mr. Charudatta Jadhav
Funding and development support: GTL Foundation
Promoted by: All India Chess Federation for The Blind (AICFB)

Features of TALK64

TALK64 is complete chess software develop keeping in mind the requirements of blind chess players. This is the only full featured chess software in the world having complete speech support, the sound AlterNet to display. The features like speech support, user friendly interface, engine plug-in architecture, multiple language support, synthesizer plug-in architecture, useful for sighted or blind, child or adult, beginner or advance level player, fun loving or professional chess player and access through key board makesTALK64 unique in the world. Following are some of the important features of TALK64.

MODES

Player's vs. Engine
Engine vs. Engine
Edit game

STYLE AND LEVEL OF PLAY

Engine plug-in architecture
Access through key board and mouse
User friendly interface
Useful for all type of players
Good looking GUI
Speech during play
Synthesizer plug-in architecture
Multiple language support
Chatter
Database (more than 1,00,000 games from International tournament)
Player's profile
Playing options

- Type of game
- Save game
- Load game
- Load position
- Edit game
- Edit position
- Analyze game

- Analyze game file
- Hints
- Flip board
- Changing board size
- Different chess notations
- Accepting and declining offers

Training

Opening traps
Chess opening with sub variations
Middle game (sacrifices)
End game (all most all the themes)
Games of world champions

