

APPLICATION OF TECHNOLOGY IN DEVELOPING CHESS SKILL

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ABSTRACT

Chess is a mind game which sharpens the analytical, logical, assessment and interpretative skills of an individual. Application of computer technology is amenable to simulate the game in an interactive way as well as to give feedback in real time to a chess player. Computer technology has revolutionised chess teaching and development of chess skill in a player. A judicious use of chess hardware computers, chess software, laptops, PCs, and Pocket PC Chess computers to explain chess moves; ideas, concepts, move variations and reasons for the moves; is a most effective way of developing chess skill. This paper gives an insight into how best to use technology to teach chess and develop chess skill in a player in a most instructive way.

Keywords

Technology, computer, simulate, interactive, feedback, development, hardware, software, laptops, concepts

INTRODUCTION

I am involved in the field of chess coaching for the past three years or so. My students range from beginners to club level players to players who have played at the National level. A few are close to reaching the International level.

TEACHING STRATEGY

My teaching strategy is to first assess the level of the student. For this, I use a hardware chess computer called Alexandra Chess which has unique teaching functions along with 136 different levels of play. The salient feature of Alexandra Chess is its ability to provide different levels of play to a human player. Not only does Alexandra Chess play at different strengths at different levels but also it makes weak moves sometimes to give the student the critical experience of taking advantage of weak moves made by players. This is how it is in games between two humans – a human's play is replete with a mixture of strong and weak moves and it is by taking advantage of these weak moves that people win games. Playing against Alexandra Chess is a unique learning opportunity because the student learns here how best to take advantage of and exploit the weak moves of opponents. Also, Alexandra Chess provides coaching functions in natural language. With the Coaching Feature switched on, Alexandra Chess provides Master level advice on what moves or sequence of moves to play in natural English language. At Level 1, Alexandra Chess plays at the level of a Beginner whereas at Level 136, it plays at the level of a Master. My teaching strategy is to make my students play with Alexandra Chess at a Level slightly stronger than their strength. The idea is to make the student stretch and yet know that beating that level is possible because it is only slightly stronger than him / her. As the student acquires more skills and learns more lessons, his strength increases and he is able to beat the level. Next, he plays Alexandra Chess at a higher level.

I carefully note down in a book all the moves of all games played between my individual students and also the games played between my students and Alexandra Chess. Each of these games is then analysed with the help of a Super Grand Master level chess software called HIARCS. HIARCS stands for Higher Intelligence Auto Response Chess System. HIARCS is written by Mark Uniacke of England and has the capability of calculating upto 31 (Black and White) moves deep. Chess GrandMaster Viswanathan Anand, the current World Chess Champion, uses HIARCS to analyse his games and rates HIARCS as being stronger than the famous DEEP BLUE.

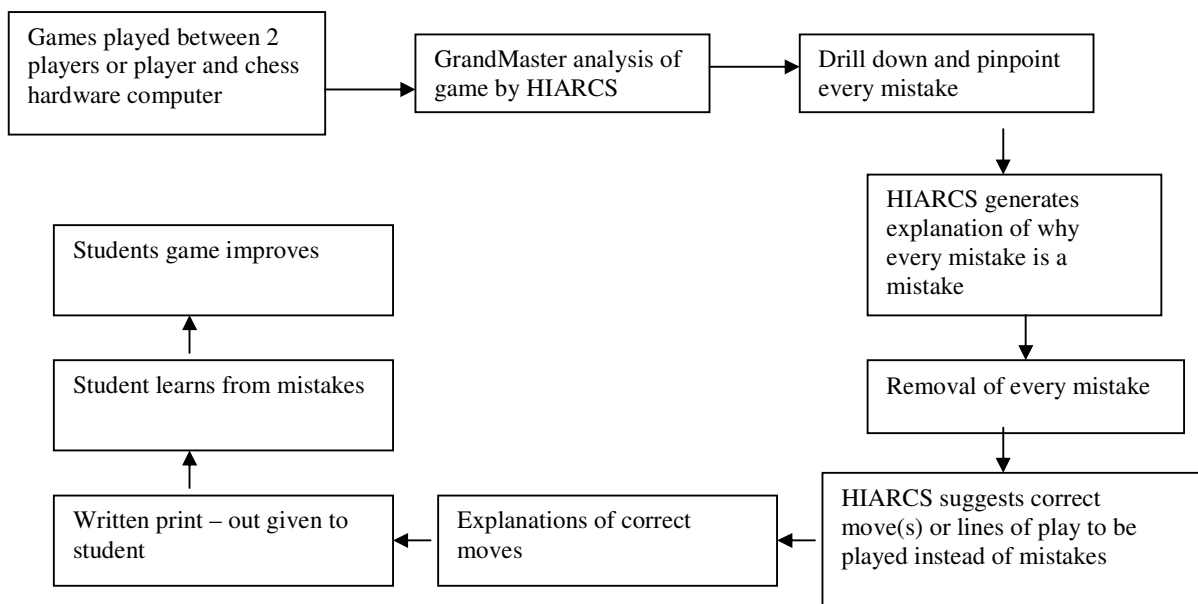
The teaching strategy is to use HIARCS to do the following:

- 1) Identify every weak move that is played in the game.
- 2) Explain why that weak move is an error – the student must grasp and understand the reason why an error is a mistake.
- 3) Use HIARCS analysis functions to rectify the mistakes by suggesting better alternative moves and lines of play.
- 4) Explain the correct move and sequence of moves that should have been played in each position.

CHOICE of ALEXANDRA CHESS AND HIARCS

I chose Alexandra Chess because of its excellent coaching functions and because it is the best chess hardware computer in the world suited to the task of providing different levels of play to a developing player. Its 136 levels provide more variety than other hardware computers that have 70 to 80 levels of play. HIARCS was chosen because it is not only the leading chess software in the world but also because of its unique human-like style of analysis and play. The analysis provided by HIARCS is known to be akin to a humans way of thinking and this is in contrast to the computer-like analysis provided by other chess software programs. HIARCS is the best software to improve your game.

I use HIARCS to guide the process of learning of the student so that he can learn from his mistakes and improve his game. This process is depicted on the following page:



I also use basic Chess theory books and puzzles to develop in the student “Pattern recognition” which is fundamental to becoming a good player. The student also plays through games of two master level players and tries to predict why each master played the move he played. By solving chess puzzles and going over master games, the student learns how to select and play good moves in different positions.

Below is an example of an analysis generated by the Grand Master level Chess software - HIARCS, of a game played between two of my students during the Gurgaon District Chess Championship.

Hari Singh Raghav - Shashwat Kishore [*Hiarcs 8 (30s)*]

Opening: Ponziani Opening and Scotch Gambit

1.e2-e4 e7-e5 2.d2-d4 e5xd4 3.Ng1-f3 Nb8-c6 4.Bf1-c4 Bf8-b4+ 5.c2-c3 last book move **5...Bb4-a5 6.b2-b4** [6.Nf3xd4 Nc6-e5 7.Bc4-e2 Ng8-f6?] **6...Ba5-b6= 7.c3xd4 d7-d6** Controls e5 [17...Nc6xb4 8.Nb1-c3 Nb4-c6=] **8.Qd1-b3** [8.0-0!?] **8...Qd8-e7** [8...Nc6xd4 9.Nf3xd4 Bb6xd4 10.Bc1-b2 Bd4xb2 11.Qb3xb2µ (11.Bc4xf7+?? the pawn of course cannot be captured 11...Ke8-f8 12.Qb3xb2 Kf8xf7+)] **9.0-0** [9.Bc1-e3 Bc8-g4 (9...Qe7xe4 10.Nf3-g5 Qe4xg2 11.Bc4xf7+ Ke8-e7 12.Bf7-d5 Nc6xd4 13.Bd5xg2 Nd4xb3 14.a2xb3±) 10.Bc4-d5 Ng8-f6 11.Bd5xc6+ b7xc6=] **9...Ng8-f6** [19...Nc6xd4!? might be a viable alternative 10.Nf3xd4 Bb6xd4³] **10.Bc1-b2 0-0 11.Nb1-d2** [11.Rf1-e1 a7-a6² (11...Nf6xe4? fails because of 12.Bc4-d5+-)] **11...Bc8-d7** [11...Nf6xe4 12.Nd2xe4 Qe7xe4 13.Bc4xf7+ Kg8-h8 14.Ra1-e1²] **12.Rf1-e1 Rf8-e8** The pressure on e4 grows [12...a7-a6 13.a2-a4²] **13.a2-a4 a7-a6** Secures b5 **14.a4-a5** This push gains space [14.Ra1-c1 Bd7-g4±] **14...Bb6-a7 15.b4-b5** [15.Ra1-c1 Ra8-d8²] **15...a6xb5 16.Bc4xb5 Nc6-b8?** [16...Ra8-b8!²?] **17.Bb5-c4** [17.e4-e5 d6xe5 18.Re1xe5+-] **17...b7-b6??** causes further problems for ? [17...Nb8-c6±] **18.a5xb6+- c7xb6 19.e4-e5 d6xe5** [19...Nf6-g4 does not help much 20.Nd2-e4 b6-b5 21.Bc4-d5+-] **20.d4xe5 Nf6-g4 21.h2-h3** [21.Bb2-a3 and White can already relax 21...Qe7-d8 22.Bc4xf7+ Kg8-h8 23.Bf7xe8 Qd8xe8+-] **21...Ng4xf2??** another bit of territory lost [21...b6-b5 22.Bc4xf7+ Qe7xf7 23.Qb3xf7+ Kg8xf7 24.h3xg4 Bd7xg4±] **22.Ra1xa7** [22.Kg1xf2?! is the weaker alternative 22...b6-b5+ 23.Ra1xa7 Ra8xa7±] **22...Ra8xa7** [!22...Nf2xh3+!² must definitely be considered 23.g2xh3 Ra8xa7 24.Qb3xb6 Bd7xh3³] **23.Kg1xf2² Ra7-b7??** [!23...Bd7-e6² would bring relief] **24.Nd2-e4** [!24.Bb2-a3 might be the shorter path 24...Qe7-d8 25.Bc4xf7+ Kg8-h8 26.e5-e6 Bd7xe6 27.Bf7xe6+- (27.Re1xe6?! Rb7xf7 28.Re6xe8+ Qd8xe8±)] **24...Re8-d8** [24...Bd7-e6 is still a small chance 25.Bc4xe6 f7xe6+-] **25.Bb2-a3 Qe7-e8 26.Ne4-d6 Qe8-f8** [26...Bd7-a4 a last effort to resist the inevitable 27.Qb3-b4 Qe8-f8 28.Nd6xb7 Qf8xb4 29.Ba3xb4 Rd8-c8 30.Bc4xf7+ Kg8-h8+-] **27.Nd6xb7** [27.Bc4xf7+ Kg8-h8 28.Nd6xb7 Bd7-a4 29.Ba3xf8 Ba4xb3 30.Nb7xd8 Nb8-d7 31.Bf7xb3 h7-h5 32.e5-e6 Nd7-c5 33.Bf8xc5 b6xc5 34.e6-e7 Kh8-h7 35.e7-e8Q Kh7-h6 36.Re1-e6+ g7-g6 37.Qe8xg6#] **27...Qf8-e8 28.Nb7-d6** [!28.Nb7xd8 and White can celebrate victory 28...Qe8xd8 29.Bc4xf7+ Kg8-h8+-] **28...Qe8-f8 29.Nd6xf7 1-0**

The moves in bold Black are the actual moves played during the game and were fed into HIARCS. Everything – comments, symbols, and moves in light black etc. have been generated by HIARCS. For example, HIARCS evaluates the position at the end of move 6 (6...Ba5-b6=) as being equal with the symbol =. HIARCS recognizes and states that the opening played in this game is called the Ponziani Opening and Scotch Gambit.

HIARCS pinpoints all mistakes made in the game - the move 16...Nc6-b8? – HIARCS feels that this is a blunder by Black and believes that the move 16...Ra8-b8 is a viable option. However, White played 17.Bb5-c4 and failed to capitalize – HIARCS believes that the correct move to play is 17.e4-e5 after which the moves d6xe5 18.Re1xe5 +- leads to a winning advantage for White (depicted by symbol +-). Another terrible blunder 17...b7-b6?? causes further problems for Black [HIARCS thinks that correct is the move 17...Nb8-c6] and this time White finds the correct move 18.a5xb6+- to reach a winning advantage. Again, 21...Ng4xf2?? is considered by HIARCS as a terrible blunder resulting in another bit of territory being lost and HIARCS feels that the alternative move 21...b6-b5 would have been better. 23...Ra7-b7?? is also marked by HIARCS (by the symbol ??) as a terrible blunder after which Black's game is completely lost. Finally, White (Hari Singh Raghav) wins on move 29 by playing 29.Nd6xf7. (The symbol 1-0 means that White has won). It is also to be noted that White missed the very best continuation to win on moves 24 and 28.

But these best moves are very difficult to find in a complicated game like chess which has infinite possibilities. Even Grand Masters would find it difficult to find these best moves and it is left to HIARCS to suggest the moves and show the path to ordinary human mortals. Once a human is suggested the move and shown the idea, then the human mind quickly grasps the winning ideas and understands how to play if a situation similar to this occurs again in his games. This leads to improvement in his chess skill and level of play.

Below is the position that occurred in the above game after Black's 12th move. Black has moved 12...Rf8-e8 (Rook which was on f8 moves to square e8) with the idea of putting pressure on the White Pawn on the e4 square.

```

XABCDEFGHY
8r+-+r+k+(
7zppzplwqppzpp'
6-vlnzp-sn-+&
5+-+--+-+-%
4-zPLzPP+-+$
3+Q+-+N+-#
2PvL-sN-zPPzP"
1tR-+-tR-mK-!
xabcdefghy

```

As shown above, it is possible to take screenshots of every position that has occurred during the game. Below is the final checkmate position that would have occurred if White had played the move 27.Bc4xf7+ as suggested by HIARCS (calculated 11 moves deep). However, White missed this continuation and played 27. Nd6*b7.

```

XABCDEFGHY
8-+-sN-+-+(
7+-+--+-+-'
6-+-+R+Qmk&
5+-zp-+-+p%
4-+-+--+-+$
3+L+-+N+P#
2-+-+--mKP+"
1+-+--+-+!

```

X

I also make extensive use of LAPTOPS to impart chess knowledge. Lots of chess knowledge can be captured on a Chess Software CD and by playing the Chess Software CDs on the laptop, it is easy to teach how to play chess openings, middle games, and endgames effectively. For example, a particular chess opening called the Petroff Defense is explained in depth (through CD) by a Spanish Chess Grand Master Alexei Shirov on the Laptop screen in fluent English.

GM Shirov not only explains all the ideas behind the defense but also evaluates all possible move options and move variations. The Visual and Audio features of a Laptop allow him to explain every move of whole games in which the Petroff Defense is played. Judicious use of coloured arrows, square highlighting, and piece highlighting make the entire subject most exciting to learn. Concentrated listening for approximately 2 hours (at learners own pace) will lead to attaining mastery of the subject matter placed on the Software CD (eg Petroff Defense Chess CD).

Similarly, there are Software CDs for improving your chess endgames and middlegames. Also, there are some Software CDs (eg “Path to Tactics”) that are designed to improve your calculation ability. A highly developed chess calculation ability implies the ability to see accurately many moves ahead and also the ability to find the best move in complex situations with a myriad of possibilities. When you run the “Path to Tactics” Software CD on the Laptop, a chess position is displayed on the screen and the learner is required to play what he thinks is the best move in the position.

As soon as the learner plays the move he feels is best, feedback in written English comes on the screen explaining the strengths and weaknesses of the move that he has chosen. The Software also gives him points (ranging from 0 to 10) depending on how good his move is. In this way, he goes through an entire game where he is required to find the best move approximately 20 times. He is also assigned a final score depending upon his overall performance. This entire process is interactive and very entertaining for the learner. A few months of work with this Software CD (Path to Tactics) automatically improves the calculation ability of a player, which results in increased chess skill.

CONCLUSION

Computer technology has positively impacted chess teaching and led to a rapid development of chess skill in a player. Laptops, PC, Chess software, Chess hardware computers, and Chess Training Software CDs can be intelligently used to explain chess ideas, concepts, and moves. The above method of teaching has proved to be highly innovative and effective and has made a positive effect on the students learning. Thus, this paper gives an insight into how technology has been utilized to add significant value to the learning by the student and explains how to use technology to teach chess and develop chess skill in a player in a most instructive way.

“Development of chess skill using technology in a most entertaining, instructive, and enjoyable way” is how all my students describe this entire process of learning chess.