



16 Bridge as a Cognitive Tool

Amaresh Deshpande

Background

In 1996, the United Nations Educational, Scientific and Cultural Organization (UNESCO) stated in a report:

Bridge can develop, as an awakening sport and through its factor of conviviality, one's intellectual faculties and a better knowledge of others. It is for this reason that UNESCO accepts to give its help to the World Bridge Federation for all our work in ways to develop bridge at school and for young people.

Benefits of learning Bridge

Bridge stimulates both the left and right sides of the brain, improving skills in patience, concentration, logic, imagination, lateral thinking, articulation, mathematics, memory, multitasking, visualization and social cooperation.

Particularly, I have found Bridge to be a classroom remedy for math phobia and diminished attention span.

Math phobia

There is an entire Wikipedia webpage devoted to mathematical anxiety, commonly known as math phobia. It is a condition that can start in a child as early as first grade and cuts across all of society wherever mathematics is formally taught.

When students say they don't understand mathematics, it is more indicative about their emotional state than their cerebral. Even when they encounter a creative and sensitive teacher, the moment he puts down, say 'x' and 'y' on paper or draws a triangle, they are transported back to their emotional state of fear / hatred / indifference – as the case may be. So

it would be a while before those students are able to overcome their particular emotional condition; and in today's fast-paced world how long will that take when life is so busy for everybody!

Having taught mathematics informally for all school ages, I feel that to treat math phobia, it is more effective to tackle it from outside the subject rather than from within. About three years ago, while teaching (urban and rural children) in three schools in Auroville, the idea - of using Bridge as a corrective tool – emerged, since cards certainly don't carry the emotional baggage that mathematics does in a scarred student.

In this way it is easier to affect a fundamentally empowering – I too can independently think - change in this student using selective aspects of Bridge, where logic / problem-solving can be seen and experienced to be accessible, and as a start, mathematics will begin to feel lighter. Such a psychological shift in the student is as fundamental as the shift of having learnt to ride a bicycle or keep oneself afloat on water. Just as there is no question of ever forgetting cycling or swimming, once learnt – in the same manner there would be no relapse in the student in that which has been internalized. That point must be reached, and through Bridge – can be reached.

Diminished attention span

Children today are over-stimulated because a large part of their time outside school hours is spent on Facebook, Twitter, text-messaging, video games, surfing the net and television. The effect of all of this is that kids in classrooms have become restless and distracted and their attention spans are ever

decreasing. Since academics can never compete with this kind of relentless stimulation, students are easily bored. No doubt today's kids are much sharper in many ways precisely because of this stimulation, but many equally valuable abilities from an earlier generation are lost. These include the quiet and the patience to be able to read a book, or more generally, to engage in an activity that takes time to unfold and where no instant gratification may be available.

From the experience gained through my recent Bridge workshop at the Bangalore International School, I feel that Bridge can be an effective antidote to the world-wide problem of over-stimulated and restless kids in a modern classroom. Two boys from fifth grade - A and J - particularly come to mind.

Both are distracted kids, but differently so. A is quiet and lost in his own world (what one might call 'spaced-out'), while J is volatile and disruptive. In the beginning A couldn't string his thoughts properly together, in fact was impulsive and gave incoherent, random answers. But because he liked the game, he stuck to it and gradually learnt to answer the questions thoughtfully and precisely. As the workshop progressed, A was able to work his way through increasingly complex situations, sometimes just mentally, that requires a much higher order of concentration than it takes to play out the cards on the table.

As for J, he hardly needed time to work out the problems (most of them he did mentally), generally being the quickest in class. During the workshop, J no longer displayed his usual disruptive behavior except on a single occasion when he got very upset with a fellow student - whom he pushed; then threw his cards on the floor and walked out, but I suspect the fellow student was needling him. Rather, J was always enthusiastic even when I asked him to assist others who were struggling. His helping didn't always work out, because often he was too fast in his explanations and got bored if he wasn't understood.

So the task with J was to keep him challenged with tougher problems, and given the format of the workshop that allows for different abilities to function at their own speed, it was possible to engage J for reasonably sustained periods of time.

Why hasn't Bridge taken root in schools worldwide?

In 2005, Bill Gates and Warren Buffet donated one million dollars towards the cause of teaching Bridge in American schools. Unfortunately nothing substantial of note seems to have come of this. Besides this generous and concerted effort, there have been several more humble attempts to introduce Bridge in schools worldwide, yet there appears to be no sustained, pedagogically rigorous teaching program according to the information available on the internet.

In the past, teaching of Bridge (as with most general books on Bridge) began with *bidding*. This is much too abstract a topic to start with most adults, never mind children. Over time MiniBridge was developed as an intermediate game before beginning Bridge. MiniBridge bypasses *bidding* and instead focuses on the *trick-taking* aspect of Bridge. But even Mini-Bridge can become too theoretical when taught by an overbearing missionary bridge player / teacher.

In fact, therein lays the problem. School teachers almost never know Bridge; so most of the attempts to introduce Bridge / MiniBridge to school students have been by Bridge players and Bridge teachers who have not had much experience of dealing with children.

Within the Indian context, a further problem exists; the commonly held view of cards being associated with gambling.

Teaching methodology which I have evolved

I begin with open-card problems known in Bridge world as *double dummy* problems. These are akin to



endplays in chess – and like pieces on a chessboard, all the cards are visible at all times to everyone present at the table.

The distinctive feature of my open-card problems is that the individual cards do not belong to the person sitting behind them and that the persons sitting at North and South seats are not playing against the people sitting East and West. Rather it is the North-South cards that are playing against the East-West cards.

Working through the open-card problems, students have gradually learnt the importance of calming down and relaxing; then to focus on the given task and start independently thinking, working through a variety of if-then scenarios from all the four perspectives (i.e. from the North, South, East and West directions, irrespective of where the student is sitting at the table); then arriving together at the optimal solution within their small group (of up to four students); and lastly to articulate to the whole class the group's (wrong or right) answer. In this collaborative way of problem-solving, competition is eliminated altogether since none of the players themselves are winners or losers; rather it is the North-South or East-West cards that win or lose.

Competition leads to one-upmanship and to psychological domination of a minority of 'bright'/quick/loud students over the majority of the group. Problem-solving, I feel, is better approached through cooperation and non-competitive dialogue where each participant (in a small group) has an opportunity

to articulate his / her own reasoning and for others to check its logical validity with respect to their own articulation – the idea being that everyone should get a chance to speak and be heard, irrespective of whether one is right or wrong. The emphasis then is on the process and not loaded in favor of the 'correct' result. Thus all the answers are equally discussed in detail, in an environment that is essentially non-threatening.

From the open-card problems, I lead the students on to selected Bridge software that deal with the trick-taking aspect of the game (to learn to identify patterns and apply the relevant techniques learnt from the open-card problems to the situations occurring over fifty two cards); then on to MiniBridge (where students experience the trials and tribulations of team dynamics); and lastly, to the full game of Bridge - which as someone once succinctly observed:

“This is a most humbling game, and sometimes it seems you get sucked in to a Black Hole and will never get out. Don't worry. As the doctor said to the patient with a kidney stone, ‘This too will pass.’”

Scaling the Bridge program for urban and rural schools

In collaboration with experienced curriculum coordinators, a comprehensive Bridge syllabus could be designed and then tested in a few willing schools for the period of one year – the idea being to introduce Bridge, in a phased manner, as a topic in mathematics textbooks from grades one to nine.

Subsequently, a training course could be designed to be taught (optionally) in teacher-training colleges and institutes so that young teachers would have working knowledge of the game.

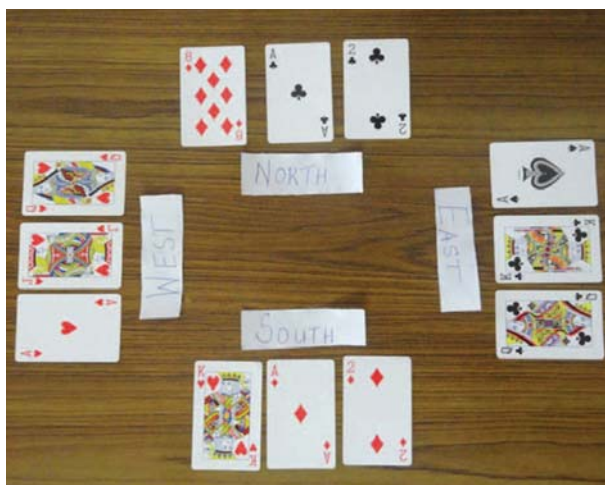
Bridge books are unavailable in vernacular Indian languages, so translation work of important books would be necessary for creating a body of resource material.

Sample open-card problem

(A single person playing chess will usually play fairly and optimally from both white and black pieces, gaining perspectives from the two sides. Similarly, in this open-card problem, the person/s should play impartially and optimally from each of the North, East, South and West seats).

Rules: North and South cards are one team playing against the East and West cards that form the other team. All the four suits (Spade, Hearts, Diamonds and Clubs) have equal hierarchy – and within a suit, the hierarchy from high to low is: Ace King Queen Jack 10 9 8 7 6 5 4 3 2. The object of the game is for each of the North, East, South and West seats to take tricks for one's own team. A trick requires four cards and the highest card wins the trick. It is necessary to follow suit, which means when a spade is led, the next player (going clockwise) must play a spade if the player has a spade; else a discard is made. A discard can never win a trick, irrespective of how high the discard may be. Whoever wins the first trick, starts the second trick, whoever wins the second trick starts the third trick and so on. The (given) score must be reached, but only after each card has been played optimally from every seat – which the solution of the problem will clarify.

Situation: Arrange the twelve cards open-faced on the table according to the picture.



Target: Starting North, win three tricks (in total) for the North-South team, playing optimally from each of the North, East, South, West seats.

Solution:

Wrong answer #1

Trick 1: North leads Club Ace, East follows suit with Club Queen, South discards with Diamond Two and West discards Heart Jack. North wins trick 1.

Trick 2: North leads Diamond Eight for the second trick, East discards Spade Ace, South follows suit with Diamond Ace and West discards Heart Ace. South wins trick 2.

Trick 3: South leads Heart King for the third trick, West follows suit with Heart Queen, North discards Club Two and East discards Club King. South wins trick 3.

It seems that North-South team have got the required target of three tricks (North winning trick 1 and South winning trick 2 and trick 3), but only because West didn't discard optimally on the second trick. Notice what happens when West impartially discards Heart Queen on the second trick (seeing that South is going to start with Heart King for third trick). The third trick will duly be won by West since Heart Ace will beat Heart King, the last standing card led from South.

Wrong answer #2:

Trick 1: North leads Diamond Eight, East discards Club Queen, South follows suit with Diamond Two and West discards Heart Jack. North wins trick 1.

Trick 2: North leads Club Ace for the second trick, East follows suit with Club King, South discards Heart King and West discards Heart Queen. North wins trick 2.

Trick 3: North leads Club Two for the third trick, East discards Spade Ace, South discards Diamond Ace and West discards Heart Ace. North wins trick 3.

This time it seems that North (alone) has got the required target of three tricks, but only because East didn't discard optimally on the first trick. Notice what happens when East discards Spade Ace on the first trick. The third trick will be won by East since he will have a club remaining which will beat Club Two from North.

Correct answer:

Trick 1: North leads Club Ace, East follows suit with Club Queen, South discards Heart King (since that is the card, if kept, will ultimately lose to the Heart Ace from West) and West discards Heart Jack. North wins trick 1.

Trick 2: North leads Diamond Eight for the second trick, East discards Spade Ace (in case South follows suit with Diamond Two, having learnt from wrong answer #1 to save a Club), South follows suit with Diamond Ace and West correctly discards Heart Queen (having learnt from wrong answer #2). South wins trick 2.

Trick 3: South leads Diamond Two for the third trick, West discards Heart Ace, North discards Club Two and East discards Club King. Thus South wins trick 3.

In this correct answer, North, East, South and West have each played optimally in the interest of their own team – and the target of three tricks for the North-South team has been reached.



For many years, AMARESH used to live and work on a farm near Kodaikanal, prepare students of the Kodaikanal International School to write the S.A.T. and occasionally write fiction. Now he travels around India, conducting Bridge workshops in progressive schools for elementary, middle, high school students and teachers. He is also involved with the remarkable Bridge-playing village of Raibidpura in the state of Madhya Pradesh. (<http://bridgebhasha.wordpress.com/>). In between, he tries to find time to mulch the fruit saplings and cut the surrounding weeds that grow so fast on the farm in Kodaikanal. He can be contacted at amaresh.deshpande@gmail.com