CHESS, PIAGET AND POLGÁR

By Richard James

Imagine this, if you will. The Headteacher of a Primary School reads in a newspaper that music is good for you. So the school buys violins for all the children who show an interest and one hour is set aside after school each week so that all the children can play the violin. You can guess what would happen, can't you? Just think of all that scratching and scraping.

Yet this scenario is being repeated year after year in schools up and down the country, not with music, but with chess.

I have been teaching chess, or, more accurately, running chess clubs, in schools for ten years now. While it is true that school chess clubs play an important and valuable part in the life of the school, and that many children derive much pleasure, and perhaps a certain benefit, from them, the standards are, in most cases, rather low. I usually find that children who start school chess club in Year 3 make rapid progress for the first 18 months or two years, but fail to develop any further. I am sometimes asked to run chess clubs in Infant Schools: Years 1 and 2. At this age, a few children are able to play a reasonable game, but many others find the concept beyond their comprehension.

It soon became clear to me, both from these experiences, and from similar experiences with some of my private pupils, that there was a problem: and that the problem was only indirectly related to chess.

So I started reading about children's cognitive development, and, inevitably, soon came across the work of Jean Piaget. Piaget's pioneering work has been subject to much criticism and revision over the years, but it's still a useful place to start in any investigation into the inter-relation between chess and children.

Piaget's theory is that children pass through four major periods of intellectual development. The sensorimotor period, from birth to two years of age, the preoperational, from two to seven years of age, the concrete-operational, from roughly seven to twelve, and the formal-operational, from about twelve upwards.

According to Smith, Cowie and Blades (*Understanding Children's Development*) a concrete-operational thinker "is still tied to the immediate experience but within these limitations can perform logical mental operations". Their description of a formal-operational thinker runs as follows: "Abstract reasoning begins. The child can now manipulate ideas in her mind as well as actual objects and people; she can speculate about the possible; she is able to reason deductively, and formulate and test hypotheses."

That sounds to me like a pretty good description of what I try to do when I play chess.

Chess is essentially a game of logic, which, according to Piaget, children only start to develop at the age of seven. My experience is that children in Infant Schools have difficulty in grasping abstract concepts such as checkmate. If I make a mistake and leave

my queen where you can take it, you may, and almost certainly should, do so. But if I make a mistake and put my king where it can be taken, if you take it you will be breaking the rules of chess. It is very difficult to explain this to a seven-year-old. Children in Infant Schools also face other problems in learning the game. Many of them are unable to concentrate on a task for more than a few minutes. Some have difficulty moving bishops along diagonals because their eye-brain co-ordination is not sufficiently developed. Others again have problems with motor skills – every time they try to move a piece everything falls of the board, and they have no idea on which square the pieces should be replaced.

Older children – of Junior School age and at the concrete-operational stage of development – will be able to grasp the basic concepts and logic of the game, and, within a year or two, will be able to play to a reasonable standard. But there their development stops. Although they will continue to enjoy the game, they eventually become frustrated by their lack of progress and by Year 6 are starting to drop out. I believe that this is due to their inability to bring formal-operational thinking techniques to bear on their games.

Concrete-operational thinkers, it seems, react instinctively to the first element of the position they see, whereas formal-operational thinkers will try to collect all the available information about a position before choosing a move. I am currently carrying out an experiment into thinking techniques used by children of different ages and playing strengths when solving chess puzzles. This will be the subject of a future paper.

We can therefore propose a hypothesis. Preoperational thinkers can learn how the pieces move, but will not be able to play a game of chess through to its conclusion. Concrete-operational thinkers will be able to play chess but only to a relatively low standard (that of a social player rather than an adult club player). To play chess to adult club standard formal-operational thinking must be used.

The whole subject of when children should learn chess and how they should be taught has, to date, received little or no consideration. A recent series of articles in the Spanish chess magazine *Jaque* by Martin Hemmings, a psychologist specialising in chess, did cover this subject, using Piaget's theories as a starting point, and reached, independently, very much the same conclusions as I had done.

But of course it's well known that a number of children reach much higher levels than would be suggested by this hypothesis. In my time at Richmond Junior Chess Club I've been privileged to work with many of them, notably Luke McShane, who, when he won the World Under-10 Championship at the age of eight in 1993, was demonstrating highly sophisticated formal-operational thinking in his play. From my observations, the children who start young (at seven or earlier) and reach adult club standard by the age of eleven have four attributes in common: they are exceptionally bright (often children who would be hoping to win a scholarship at a top academic school), exceptionally mature for their age, have extremely supportive and proactive parents, and have regular one-to-one contact with a knowledgeable and empathetic adult. This prompts the question as to what extent

they are strong chess-players because of their intelligence, and to what extent their chess playing has, through skill transference, helped their academic success. And this is another version of the old, and still unresolved, question of nature versus nurture.

At this point we call upon a testimony from László Polgár, a Hungarian teacher. Polgár believed that all children are capable of much greater academic achievement than is generally realised, and, on marrying, he and his wife decided to use their children to prove his theory. They chose chess as the focus of this experiment and introduced their three daughters, Zsuzsa (born 1969), Zsófia (born 1974) and Judit (born 1976), to the game at an early age.

In brief, Zsuzsa won her first tournament, the Budapest Under 11 Championship, at the age of four and a half. She later became World Women's Champion before giving up competitive chess to start a family and build a career as a chess teacher. Judit, after breaking many age records in her childhood, has been a leading Grandmaster for more than a decade and is currently rated the tenth best player in the world (of either sex). Zsofia, although less strong (and probably less interested) than her sisters, is still a formidable player. I should add that they are all very popular figures in the chess world.

Judging from the Polgár experiment, from the stories of other high-achieving young chess players, and from my own experience, parental involvement is vital if young children are to develop both chess strength and a long-term interest in the game.

Compare also the Suzuki method of music teaching. According to the Suzuki Association of Americas Inc, "In the beginning, one parent often learns to play before the child, so that s/he understands what the child is expected to do. The parent attends the child's lessons and the two practice daily at home.".

It is my belief that learning to play chess well is as difficult as learning a musical instrument and should be treated in the same way. And the younger children start to learn, the more constructive help they will need from their parents. But most parents do not have sufficient knowledge of the game to help their children. Almost all children in school chess clubs play using the wrong names for the pieces, incomplete rules and unsound strategy, and, understandably, they'll believe their parents rather then me.

So, I seemed to have reached an impasse. I could see no way of giving children more than a temporary interest in chess through school clubs. Meanwhile, I had decided that Richmond Junior Chess Club would benefit from a presence on the Internet, and taught myself how to set up a website. It suddenly occurred to me that I could set up a website providing parents with all they need to teach their children chess, and schools with everything they require to run a successful club. And so chessKIDS academy (www.chesskids.com) was born. As yet it is only partially developed – and the development has been mostly on providing technical information rather then developing cognitive skills, but at least it is on its way.

I believe the time is now right to move away from the traditional after-school club as the sole focus of chess in schools, and to introduce a course based partly on chessKIDS academy and partly on some of the excellent chess playing and teaching software now on the market. There will be compulsory – and enjoyable – homework: completing assignments on chessKIDS academy, solving puzzles and much else. Such a course will, I am sure, provide children with far more enjoyment and long-term benefit from chess. It will also, as has been proved by surveys in many countries, lead, through accelerated cognitive development and skill transference, to improved academic performance. Additionally, schools could offer private tuition on either a regular or occasional basis, just as many schools now offer private musical instrument tuition.

Since 1945 the average age at which children start competitive chess has been going down one year every five years. At some point in the late 1970s the focus of chess changed from Secondary Schools to Primary Schools. This policy has been endorsed both by teachers with no real understanding of the true nature of chess, and by chess players with no knowledge of children's cognitive development. As a result there are now very few people under the age of about 40 with any significant knowledge of the game. Chess in this country has become just a children's game, to be taken up for a couple of years as a craze, and discarded tomorrow along with Pokémon cards and BeyBlades. But how can children who are doing no more than playing chess for an hour a week at school appreciate the aesthetic beauty of the game? How will they ever learn about the fascinating heritage and history of chess? Or its scope for independent scientific research? Chess has provided me with more than forty years of intellectual stimulation and friendship. I don't want to lose that, but I am aware that the school chess clubs I run are making it less, not more likely that children will derive these benefits. In the nineteenth century England was known as the land without music. The way we are running chess in schools at present, in the twenty-first century we'll be the land without chess.