

The History of Mancala in the Garden Room

by John Benner

One of the joys of teaching is the opportunity to share one's favorite games. My personal favorite game is the ancient game Mancala. Mancala originated in Africa and can be played according to any number of rules (see insert) but essentially can be described as a game played on a narrow board with two rows of six or so palm-sized pits with two larger pits, called "Kalabs" at either end of the board. Players take turns scooping up small stones and placing them into successive pits, one after another until they run out of stones in their hand. At this point, depending on the rules you play by, it is the next person's turn. The traditional object of the game is to be the player with the most stones; but in the course of playing Mancala with three, four, and five year olds, I've found that in fact the true object of the game has to do with number, relationships, coaching one another, and strategic thinking.

I've come to think of Mancala in the classroom in three different ways:

- As a learning material.
- As a springboard for mathematical thinking.
- As a social learning opportunity.

Mancala as a learning material

Like any good learning material, a Mancala board dictates nothing. The open-ended nature of the board and stones allows you to craft its play to suit your needs, be you a three year old or a teacher.



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Typically I've seen children play with the Mancala board in these ways:

■ Children play with the board and stones alone, counting them, scooping them, sorting them, dropping them into the pits, or arranging them in a rich sensory/mathematical play. Four years ago, when I first introduced Mancala into my classroom, I offered the game with rainbow colored stones, and we had a lot of solitary sorting play. With fewer colors, these solitary games seem to center around counting and arranging the stones.

■ Recently I was with a group of young three year olds who happened upon a Mancala board in the school age classroom. Nearly every child rotated through the Mancala board practicing this kind of sensory/mathematical play. If pairs or trios of children happen upon the board together, the Mancala board and stones often become dramatic props for delightful games about pirate treasure, candy stores, or food.

■ Occasionally children invent their own *formal* games with the board, creating games with nearly consistent rules where they take turns picking up stones and arranging them in the pits or the Kalabs.

■ Lastly, children sit down with me or another teacher and learn a traditional version of the game.

Eventually most of our beautiful rainbow stones ended up missing, and it was time to get a new set of stones. It was at this point about three years ago, that I began to wonder what else was possible with Mancala. I began to wonder if it was possible to share what I loved about the game with the children I played with and to support their growing understanding of number. My first step was to buy a new set of stones.

Mancala as a springboard for mathematical thinking

I chose only two colors of stones this time, black and white. I discovered that "accent stones" is the formal word in gardening/hardware stores for Mancala stones. They come in bags

of about 100, which is useful considering their tendency to wander and end up in pockets. My thinking here was that by offering two distinct colors of stones I might encourage children to notice the number combinations that make up larger numbers as we played the game. Two colors gave children the opportunity to explore how many ways you could make four with two different sets, four white, three white and one black, two white and two black, etc. I encouraged this awareness of number combinations particularly at the set up of the game where we had to fill both rows of smaller pits with exactly four stones in each. The other advantage of having just two colors was that I could use the colors as an organizing principle to help teach the direction of movement in the game. Since you start your turn on a specific side only, it is helpful to have this side made obvious at first. Sometimes I also used sticky notes with arrows to help with the directionality of the game.

When I first began to explore the possibilities of Mancala and children, I was the early arrival teacher for a mixed-age group of three, four, and five year olds. After their goodbye rituals, a number of children were ready for an anchoring game of Mancala with me to help get their day started. I set up the board with black and white stones almost every morning for about six weeks. The opportunity to see the game, watch friends play the game, and play the game over and over was vital to the learning that took place. Time allowed children to build a relationship with the game and grew the Mancala fan club of children from one devotee to six or so regular fanatics and occasionally their parents.

When I had the luxury of teaching Mancala one child at a time, I was able to increase the complexity of the games to that child's pace. When I had two or more children, I would have them play together, and I would coach them through each of their turns. As children became experts they began to do their own coaching, and I would just hover nearby to help when needed.

I first taught what I call "Basic Mancala" (see insert). Combined with the directionality of the game (typically counter clockwise) and the physical challenge of remembering where to put your stones, this game was challenging enough to start with for the four and five year olds I taught. Three year olds weren't usually interested in playing any rule based version of this game, but did love the feel of the stones in their hands and the arrangements they could make. This game in its most basic form provides some excellent contexts for math learning:
Counting Skills: Simply setting up the board with the same number of stones in each pit is a wonderful counting exercise for four and five year olds. In the process of setting up the board, we often ended up with pits with only three or five stones when all are supposed to have four, so we would have to go back and check each pit or strategize about how we would solve this problem. Here is an opportunity to explore number combinations and an authentic opportunity to solve a

Rules for Mancala

NOTICE: There is no inherent rule for "winning" the game! Winning is an option, not the purpose of the game!

Basic:

Each player takes turns picking up all the stones in any pit on her/his side of the board and dropping them one at a time into each successive pit around the board.

Always drop the stones going towards your big pit (Kalah). Players choose if they will be moving clockwise or counter-clockwise by how they assign the Kalahs.

If you drop the last stone in your hand in your Kalah, you get to have another turn. Otherwise, your turn is over.

If you have enough stones to go all the way around the board, DON'T drop any stones into the other player's Kalah.

The game is over when one side runs out of stones.

Round and Round Mancala

Same as rules for basic *except:*

- When you drop your last stone into a pit with other stones in it, you pick all those stones up and keep going around the board.
- Your turn is over when you drop your last stone in an empty pit.
- You get an extra turn when you drop your last stone in your own big pit. This is a game with really long turns!

Capture Mancala

Same rules as basic Mancala, *except:*

- When you drop your last stone into an empty pit on *your* side (and your side only!) you get to capture any stones in the pit across from it. Then your turn is over.
- If you drop your last stone into a full pocket, your turn is over.
- You get an extra turn when you drop your last stone into your own big pit.
- The game is over when one side is empty. When you empty your side first, your opponent gets to keep all the stones on their side. (Leave this rule out to reduce competition.)

I believe this is the most common version of the game.

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mathematic problem. (“I see this one has three white stones and two black stones, when I count them together, I get five! We’re supposed to have four in each pit. How do we change it to make it four?”) As you can imagine, setting up the Mancala board could take a deliciously long time. With time children began to verbalize their understanding of these number combinations. They’d state a quantity and I’d ask, “How do you know?” “Because two whites and two blacks are four.” Once in a great while, we counted in the teens and 20s as we totaled our stones to see who won. We got to do more number thinking as children began to learn the multiple turn strategy.

Strategic Thinking: Once children mastered the basic structure of the game, they began to be interested in learning strategies for playing the game and in learning different versions of the game. I was careful to limit competition in this game (more on that in the next section) so that instead of “winning” being the focal point of play, having fun, following the rules, and taking multiple turns became the object of play. The most basic strategy to getting extra turns is this: “If the number of stones in a pit equals the number of pits to your Kalah, you get an extra turn.” For example, one stone in the first pit next to your Kalah, two stones in the second pit from your Kalah, three stones in the third, etc. I taught this strategy directly, rather than let children *discover* it on their own, because it made the game more exciting to them more quickly.

Throughout my game playing, I verbalized my own thinking, especially when they were ready to learn the basic multiple turn strategy to the game. “Okay, it’s my turn. I want to try to get more than one turn in a row so I’m going to look for a pit that has the same number of stones as there are pits to my Kalah. Hmm. This one has four in it, but it is one, two, three away. Nope not there . . . This one has two in it and look — it’s one, two pits away! That will give me an extra turn!” When it was the child’s turn, I would ask, “Do you see any pits that would give you an extra turn?”

After mastering Basic Mancala, we would try out other versions like “Round and Round” or “Capture.” These games each have their own additional rule in how you take and finish turns, and therefore alter the strategies you implement to get longer turns, repeated turns, or more stones, depending on your goals. For example, in Round and Round, you still get an extra turn when you drop your last stone in your Kalah, but you also get to keep going around the board when you drop your last stone in a full pit. Sometimes this leads to the choice between taking an extra turn now, or setting yourself up for a very long single turn where you circle the board several times, dropping and picking up stones.

On top of these variations, children were eager to experiment with how the game would go if you changed variables in the game, like how many stones to start with, who goes first, what pit to start with, and even what color stones to start with. One child was so excited by changing the number of stones, we had to borrow a bigger Mancala board so we had room for seven, eight, nine, and 15 stones. The outcome was *really* long turns!

Once children mastered the strategy of extra turns they were thrilled to teach it to their friends. This allowed me to assess what they understood, and it allowed them to refine their understanding through explanation. Here are some examples of children coaching each other:

John: Can you tell Michael how to get an extra turn?

Mary: (to Michael) If you need an extra turn and you put it in your last one that’s in your pocket you get another turn if you put one into the last one (a pause).

You have to count how many this and how many are those so you can get the last turn. (Notice how she refined her answer the second time around?)

Andrew: If you put the last bead in here you get an extra turn.

(Later, Michael had another turn, and Mary and Andrew helped him out some more.)

“See, there’s one there — there’s one turn see, you get another turn — so pick this one and try it . . . See, you get an extra turn now!

“Now you pick (again).” Is that extra turn no . . . that one, no that one? Not that one.” (Michael drops his stones without getting an extra turn.) “Now it’s Kim’s turn.”

At first everyone counted to determine which pit they should start with, but a couple of children became able to just glance at the arrangement of stones to know if it had enough in them to get an extra turn without explicit counting. I couldn’t tell if they had memorized the arrangement of stones or if they just had begun counting quickly by sight. What astonished me was that they began to plan their turns one or two turns ahead. One expert insisted I always go first after she noticed that whenever I went first, her turn would start with some of my stones on her side of the board. I asked, “Why do you want me to go first?” “So I can win,” she replied. “How do

you win?" "So I get more here" (as she pointed to her sixth pocket). Another friend told me, "Look, I just put one here and so next turn I'll get an extra turn." Thinking ahead can also lead one to tears, as you realize your partner just ruined your beautiful run of extra turns, or you realize they'll clear their board before you. This leads us to the social elements of the game.

Mancala as a social learning opportunity (the most important element of the game)

Any game is first and foremost a social/emotional learning place! While Mancala has a distinctly mathematical bent to it, playing Mancala also brings up a number of social issues and questions such as: What is the value of competition? What does it mean to me to win or lose? How do we choose who goes first? How do you wait for a turn? Is it more important to enjoy the company of others or win the game? When do you tell another child how to play or where to start, and when do you let him figure it out for himself? (It's a question for me as well.) Do you give advice that helps the other player or that sets you up for what you want to do? (This last question became relevant to the experts who could plan ahead.)

The most useful thing I learned playing Mancala is that competition is NOT mandatory in any game! Mancala doesn't have to be played as a winning game and I insisted that we weren't playing it as a winning game. You can only *win* a game if there's a clear rule about how to win. If you teach the rule: "The game's over when one side is empty, then you fill up all the pits and start again" (leaving out counting to see who has more), you can sidestep some of the obsession with winning or losing.

Inevitably, children ask who won or get upset because they didn't "win." You can stick to your plough shears better if you stay matter of fact about the outcome of the game throughout the game play. You can turn the question of who wins back to the child, since you don't know how you decide who wins. Is it who has the most stones? Is it who finishes first? Lastly you can say it's not a winning game unless both people agree it's a winning game before they start playing (this lets you explore competition when you want to, since navigating it is a worthwhile social skill). As for cheating, I found it useful to say, "It looks like you're more interested in having more stones than in playing the game. Let's choose to play the game and have fun together."

By minimizing or removing competition, you shift the object of the game into something that happens during game play — in this case the object shifted into trying to get as many turns in a row as possible and having fun with your friends. This is an outcome possible for both players, meaning that both players can *win*.

This prospect of tweaking the rules to suit our needs and interests also played very well into the four to five year old developmental work of learning about how rules work: at first we tend to think of rules as immutable and absolute, and then we come to understand them as agreements we can change to keep the game fair and fun. Typically we think of this learning starting at age six or so, but in this instance I found the four and five year olds beginning to do it in the context of choosing *winning or just playing games* and in choosing what version of Mancala to play. It was also helpful for me to keep in mind the idea that the rules were as open-ended as the game board and pieces themselves. This gave me the permission to change the game to suit the needs of the players.

Conclusion

In all Mancala games I've played with children, I feel like we've scarcely begun to explore all the possibilities for thinking, fun, and companionship that the game has to offer. What would it be like for children to write a strategy guide to the game? What other kinds of counters would children enjoy? What if we used a continuous quantity like clay or colored water and eyedroppers instead of stones?

Most of all, this experience with Mancala served as a springboard for my own thinking as a teacher when it came to other kinds of games. Mancala isn't the only game you can tweak to keep interesting. Memory, Candy Land, and Go Fish, are just a few games I've played with children in this same spirit of open-ended exploration. Nearly any game can be altered to shift its focus from a competitive goal to cooperative ones without sacrificing game play or the tasks and challenges in the original version. Mancala, like many games, is wonderful in the classroom because it allows both children and teachers to be scientists, mathematicians, and sociologists as we explore its tactile, numeric, and social qualities together. May your own experiments be both fruitful and delightful!

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References

Sophian, C. (1996). *Children's Numbers*. Boulder, CO: Westview Press.

Orlick, T. (1982). *The Second Book of Cooperative Games*. New York: Pantheon Books.

Here are two great web sites with the history of Mancala and games similar to it:

■ Elliott Avedon Museum and Archive of Games at the University of Waterloo, Ontario, Canada, "Count and Capture Games" page
www.ahs.uwaterloo.ca/~museum/countcap/pages/

■ The Mancala Page of The Online Guide to Traditional Games — History and Useful Information:
www.tradgames.org.uk/games/Mancala.htm

Using Beginnings Workshop to Train Teachers by Kay Albrecht

Play it again, Sam! Benner brings to life the ancient game of Mancala and in doing so describes a particularly appropriate way to help teachers see the importance of mathematical thinking (as compared with mathematics practice). Collect the materials to actually play Mancala with teachers during your next staff meeting. After a period of fun and games, convene teachers to talk about how they might use Mancala to explore math concepts as well as to practice social problem-solving skills.