MacBaby® Math - reviewed by Harry Wolfson

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FIRST IMPRESSIONS

My editor, Adrienne, said this project would be right up my alley: I could review an educational program designed for children. I'm a big advocate of helping kids learn with computers - they seem like a useful tool that can supplement more traditional teaching techniques. I was surprised when my kids, ages 6 and 3, were so easily able to pick up using a Mac. Daniel, my oldest, was able to use arithmetic reasoning to help him adjust a cannon's elevation and powder to blow up buildings on an artillery game. OK, so he learned something, but I wasn't too thrilled with his glee over the resulting destruction. That game is now inaccessible to the kids.

Well, MacBaby Math is geared for even earlier education. The cover shows an infant in diapers and a mortar board sitting at a Mac! One tiny hand grasping a mouse and another tiny hand on the keyboard... cute, but they can't be serious, can they? The caption reads "Teach children number quantity perception and introductory math concepts at an age when learning is almost automatic." Ok, ok let's just give it a try.

MacBaby Math is intended to be used as “lapware”, where the parent is an integral part of the program's operation and the learning experience. Included with the disk is a 23 page user's guide and a 110 page paperback book entitled "Teach Your Baby Math" by Glenn Doman, Director *of The Institutes for the Achievement of Human Potential*. MacBaby Math was designed to be a convenient way for parents to implement Doman's method of early childhood math education. This method involves a highly structured use of flash cards covered with dots, and a fairly rigid schedule of many short teaching sessions. Doman's techniques are meant for very young children, between the ages of 6 months to three years old. We are warned that "beyond two years of age, the teaching of math gets harder every year" [1] and that "if your child has already learned to count...[or] is developing counting skills" than (s)he may lose interest or be uncomfortable learning number quantities visually. [5]

A LITTLE CONTROVERSY

Before I describe the program, I would like to provide you with a little bit of background on Glenn Doman, his techniques and the controversy that surrounds him. The Institutes for the Achievement of Human Potential began

about 40 years ago as a place to help severely brain damaged children gain competence in areas such as basic motor skills and reading. In the early sixties, Doman started to expand his facility to allow for teaching non-handicapped kids. His reasoning was that if his techniques could teach brain injured children to read, than these same methods applied to normal children could lead to kids with abilities far beyond what was normally expected. In 1964, Life magazine [9] picked up on this new approach to teaching infants and the "Super-Baby" phenomena was born. In 1983, the Saturday Evening Post [10] described a videotape made of children taught by Doman's methods. In it, young "Elsie Matthews solved the equation 78-1-2-3-9=x by crawling to two cards, one covered with 54 dots and one with 63, and slapping the latter. 43 ÷ 3 ? Easy. Elsie picked up the card with 14 dots." Doman's Institute offers a course that "claims that parents can learn in one week of intense instruction (for a fee of $500) how to teach their infants to swim, to read, to do math, to speak a foreign language and to play the violin at the age of two." [11]

There is no doubt that there are parents who gladly provide testimonials and are happy with the results of their children's learning. However, what has always been missing, is any support for Doman in the scientific, academic or educational communities. Nor has Doman, himself, ever published anything that claims any long term effect or benefit. "No studies have been published, Doman says, because he lacks sufficient data, and the control study would be too costly." [12] That was written in Newsweek's cover article about Super Babies in 1983, almost 20 years after the popular press first started to help Doman spread his teachings. In the Education Digest, Tufts professor David Elkind wrote, "Parents have been barraged with commercial programs and books which promise that, if they follow certain procedures, they can not only teach infants and young children reading and math, but also make their offspring brighter and raise their IQ ratings - in a phrase make them 'superkids.' ... There is absolutely no evidence that such teaching gives children any lasting advantage in reading or that it has any effect on a child's brightness. There is evidence, however, that too-early formal instruction can do harm." [13]

With this caveat, let me tell you about MacBaby Math.

WHAT IS IT

MacBaby Math is a program of computerized flash cards which are intended to teach very young children "number quantity perception".[6] This program doesn't teach children how to count, quite the opposite. It attempts to teach kids to recognize the quantity of randomly arranged objects. (Remember the toothpick scene in Rain Man?) The flash cards have between one and one hundred black dots on them. The parent is prompted by a small window to tell the child the number of dots as they appear on the screen (see Figures 1 and 2).

MacBaby Math is meant to be used by following a pretty rigid 100 day schedule. For the first five days, during three 20 seconds sessions per day, the child is shown screens with between one to ten dots on them. By the 29th day, the child is being shown screens with between 25 and 34 randomly arranged dots. (The dots automatically get smaller so that they can all fit on the screen.) During the second and third months the child is to be gradually introduced to dots quantities up to 100. During this time the math concepts of addition, subtraction, multiplication and division are also introduced, while the number of lessons is increased to 15 sessions per day (Figure 3). After 100 days, the User's Guide and Doman's book encourage you to start to teach your child equations. "Start with three part equations and go up to six or seven parts (e.g., '22 + 3 + 6 + 9 + 57 + 23 + 11 = 131' or '100 ÷ 5 + 4 ÷ 6 + 3 - 1 = 6')." [7]

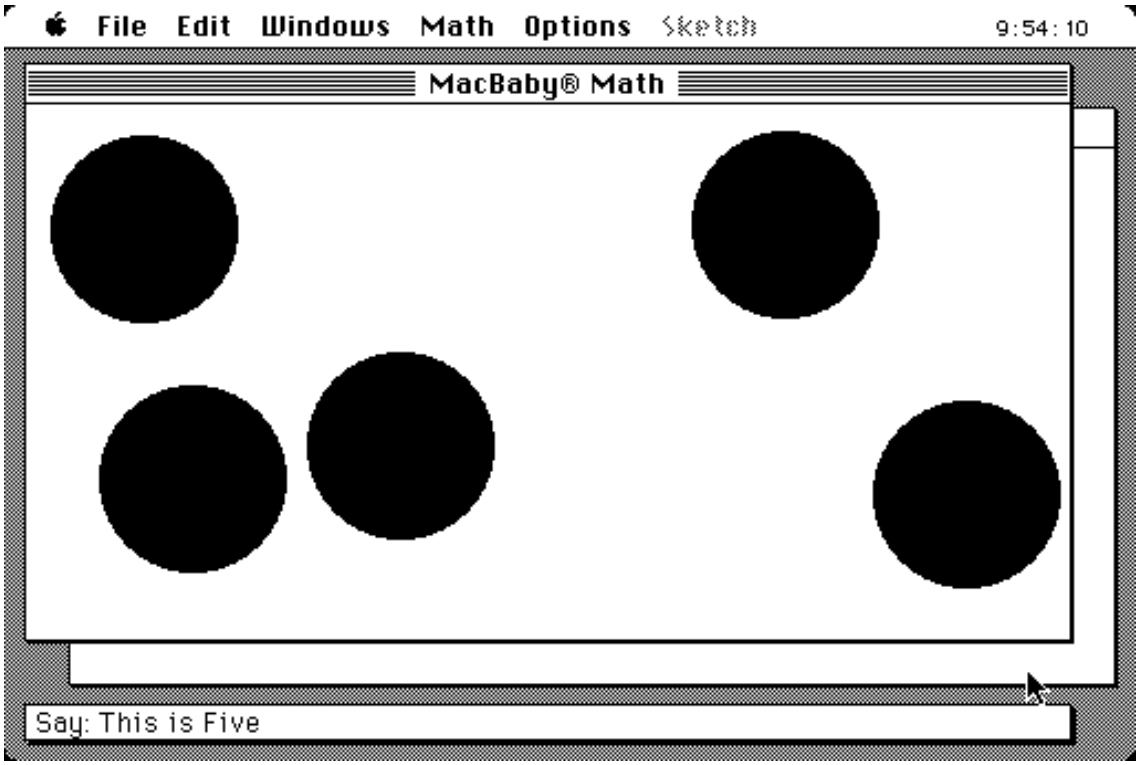

Figure 1 MacBaby Math displays a screen covered with dots to teach very young children number quantity perception ....

The program does do its part to adhere to Doman's methods (for the most part) and assists parents who wish to use this technique by taking care of the arranging, shuffling and displaying of the flash cards. What this application does differently from Doman's book are the size and the color of the dots. To assist the baby in seeing the dots and maintaining attention, Doman suggests that they be colored red and be 3/4" in diameter. Even on a color monitor,

MacBaby Math only displays black dots and their size varies depending on the number of dots on the screen. (For a good laugh, take a look at 100 dots on a 9-inch screen!)

An on-line help window is accessible from the About box, which explains the operation of the application and the functions of the menus. Menu picks allow you to change the mode from displaying dots for quantity perception, to displaying dots for arithmetic, but all the baby sees is dots. It is the vocalization and the repetition and the sequence which is supposed to teach the children.

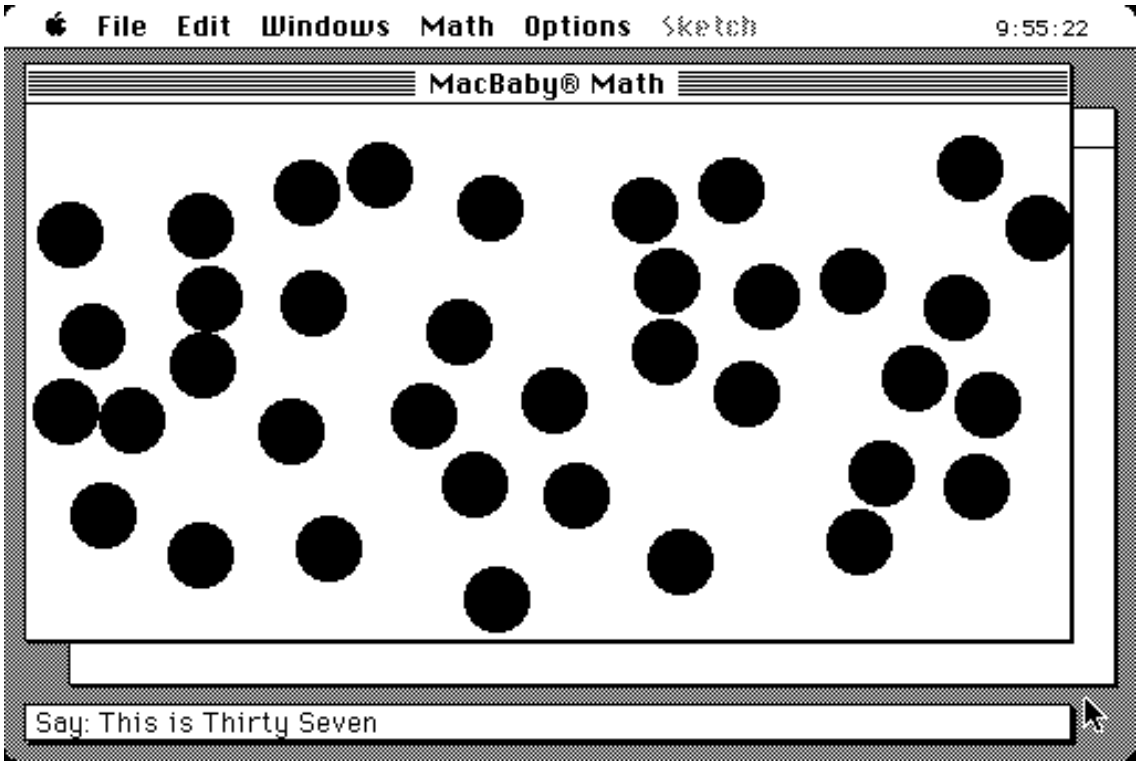

Figure 2 ... sometimes the screens get awfully crowded.

SPEAK TO ME

While MacBaby Math's main window displays the dots, a very small window prompts the parent to "Say: This is Five" or "Say: This is Thirty Seven" or "Say: Twenty Two divided by Eleven is Two". The User's Guide makes the following suggestion. (I love this quote!) "To ensure that your baby is learning to recognize the number quantities rather than learning to read the words, you can hide the Words window ... and then let the computer do the speaking." [8]

You have the choice of synthesized computer speech via MacInTalk, which is included in the program's code, or digitized speech, which is made from recordings of a very pleasing female voice. A problem with the digitized voice, on a Mac Plus, is that its rhythm is halting and unnatural, especially when it names larger numbers like "This is ... Twenty ..... Seven". This is because the Mac has to assemble the phrases from individually digitized words every time a screen changes. This speech rhythm is less of a problem on faster machines like a IIX than it is on a Plus.

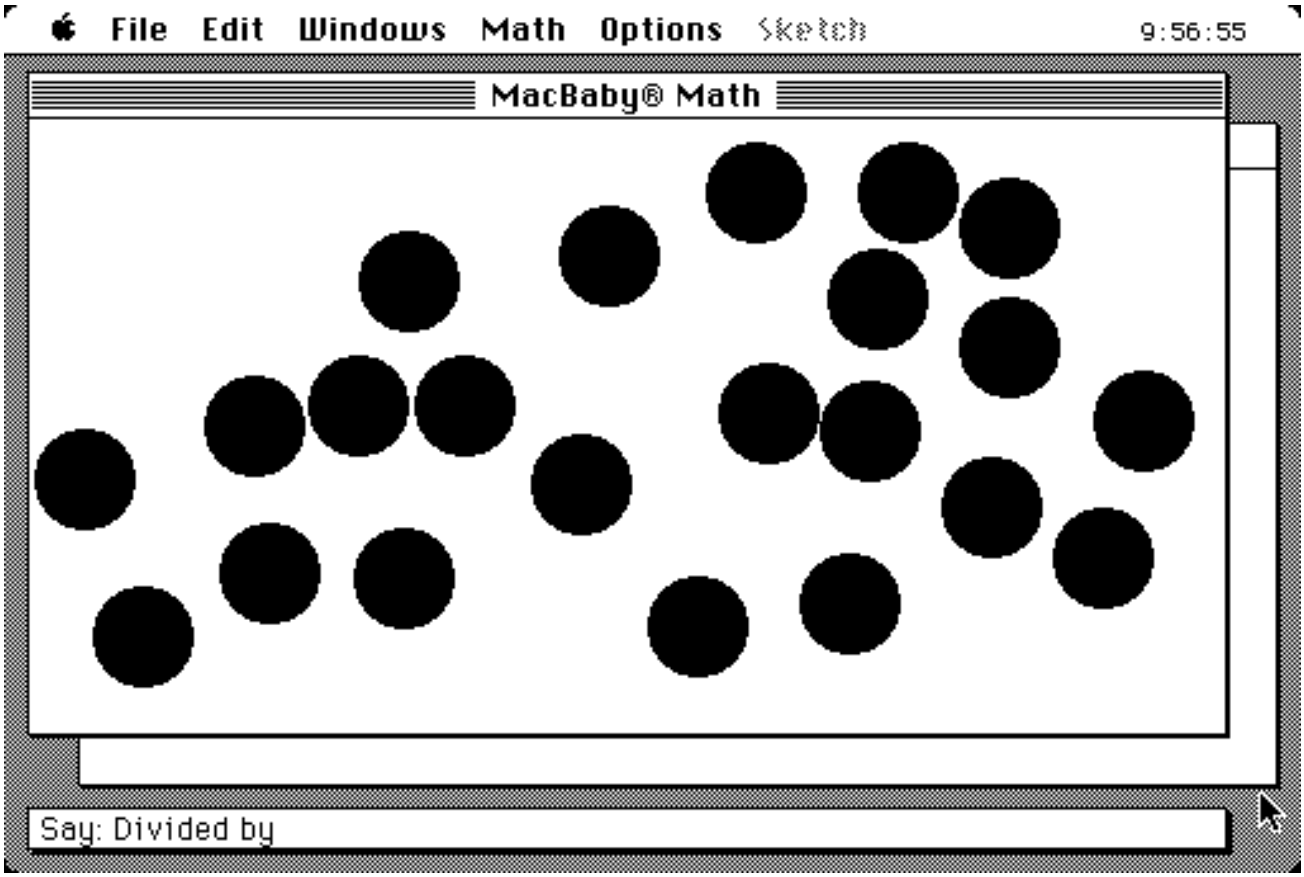

Figure 3 Addition, subtraction, multiplication and division are taught by displaying a quick succession of three screens with the appropriate number of dots, while saying "22 divided by 11 is 2 ! "

HOW FAST IS FLASH

Menu picks allow the parent to set the speed at which the screen changes, as well as the range of numbers to be covered in a session. One menu choice allows for convenient incremental changes as the child progresses. When I first

tested MacBaby Math, I was unaware of its conflict with one of my INIT's. This conflict caused the rate at which the flash cards changed to be slower than designed. At that time I thought that the speed adjustments seemed reasonable, if a little slow. Once I discovered the problem and eliminated the conflict, I was shocked at the speeds at which the program is meant to run. At slow speed (on a Mac Plus), the flash cards change every 13 seconds which seemed reasonable. At medium speed, the dots change every 7 seconds which seems kind of speedy especially for more than 20 dots on a screen, but then I'm way past the ideal learning age of 18 months old. At Fast speed, the dots really Flash, once every second! And for all those Super-Babies, you can actually turn the speed up to TWO FLASH CARDS a second. Learn Baby, Learn!

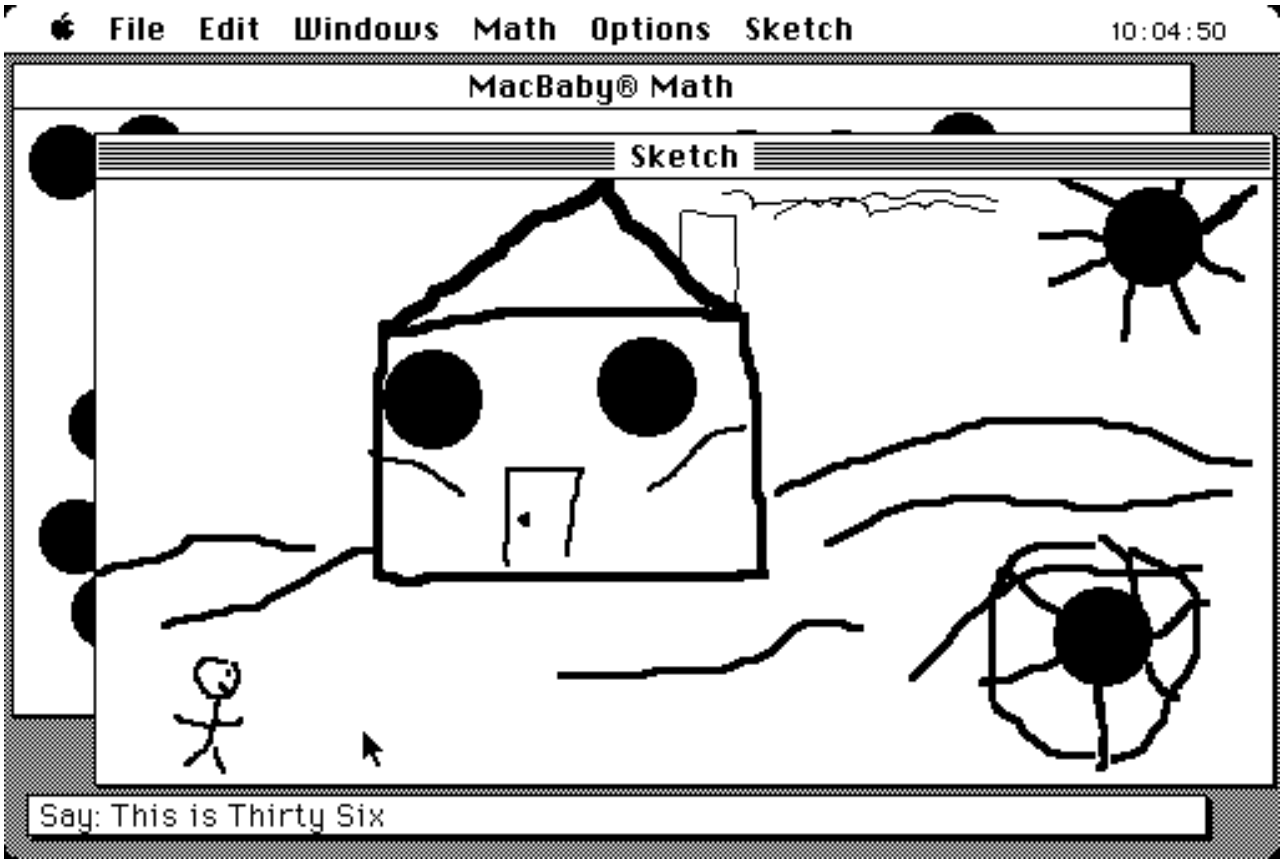

Figure 4 MacBaby Math provides a minimalist drawing window for relaxation between the repetitively short, structured learning sessions.

TAKE A REST

A Sketch window is a part of MacBaby Math. It allows for freehand drawing to let your baby to unwind after some intense learning sessions. It's

pretty minimalist though, I guess so as not to detract from the lure of more dots. The cursor stays as an arrow and portions of a drawing cannot be erased or moved. The line width can be changed among six sizes and that's basically it. Oh yeah, in addition to drawing different size lines, your baby can lay down some… (you guessed it) dots. However, the drawings can neither be saved nor printed nor copied to the clipboard.

COMPATIBILITY

MacBaby Math was tested on a Mac Plus running System 6.03. It requires 300K of RAM, due primarily to the digitized human voice. MacBaby Math has the option to use no voice, digitized human voice or a computer voice via MacInTalk, which is included in the program's Resource Fork. It was found to have a conflict with Tempo II v1.02 while in MultiFinder which caused the speeds to distort. It also has a major conflict under Finder with Tempo II and SuperClock v3.6 which would cause a system crash.

The program does not redraw the contents of its windows when flipping between different windows (e.g. DA's, other applications and EVEN between its OWN windows!). Also the menu bar flashes and changes state awkwardly when switching windows or switching back in from Multi-Finder. This, and the program's conflict with SuperClock under Finder seem to indicate a minor bug in the program's Update, Activate and/or DrawMenu routines.

TEACH YOUR CHILDREN WELL

Will MacBaby Math really help your infant learn arithmetic? Maybe, but I'm not sure that this is the right question to ask. Doman claims validity for his teaching methods based on his version of WYSIWYG, but he calls it "WKIISBWDI ... We know it is so because we do it". [2] Many people question whether we SHOULD be doing it in the FIRST place. Doman says that babies are learning all the time and can learn anything that is presented to them, therefore, why not teach them skills that will give them a edge, a head start, like arithmetic and reading; or why not teach them how to recognize classical music and fine art, instead of nursery rhymes and finger paint. He says that teaching children facts will exercise their brain and make them capable of becoming more intelligent. "Wisdom, the tiny child does not have; but the ability to take in raw facts - in prodigious amounts - he does have, and the *younger* he is, right down to the early months of life, the *easier* this is." [3] "Math is one important way of putting huge stores of information into the brain and is an important way of thinking... [and] intelligence is a result of thinking." [4]

But there are more important things to learn for a growing child than just memorizing bare facts. In his insightful book, Miseducation: Preschoolers at Risk, David Elkind writes, "Once we recognize how much time and energy infants and young children must expend in constructing a world of objects, sights, sounds, colors, shapes, ... the fallacy of miseducation becomes obvious. Infants and young children are not just sitting twiddling their thumbs, waiting for their parents to teach them to read and do math. They are expending a vast amount of time and effort in exploring and understanding their immediate world. Healthy education supports and encourages this spontaneous learning. Early instruction miseducates, not because it attempts to teach, but because it attempts to teach the wrong things at the wrong time." [14]

Young children do learn all the time and they should enjoy learning, not be forced to memorize facts by rote. If you want your very young children to enjoy learning how to use the Mac, then get them an easy to use paint program. The best paint application for kids that I've ever seen is called Kid's Pix (available in the BCS•Mac disk "Education F") and the black & white demo version is freeware!

ACKNOWLEDGMENTS

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MacBaby® Math is available from BabyWare, a Division of KAR Enterprises, 730 Bantry Court, Sunnyvale, Ca. 94087

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