Arithmetic and Fingers

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A task force consisting of Ev Schendel, C. Eileen Oslund, Marge Lucarelli, Casey Humphreys and Lous Cohen has prepared a report on CHISANBOP/FINGERMATH for the MCTM Board of Directors. The complete report will be available to members at the fall meeting. The essence is included in the conclusions and recommendation below.

1. One of the Ten Basic Skill Areas identified by the National Council of Supervisors of Mathematics is Appropriate Computational Skills. Two essentials listed are knowledge of single digit number facts and mental arithmetic. There is no apparent attempt to teach either when Chisanbop is used.

2. Chisanbop is not really a new process - finger reckoning has been around for a long time. Serious attempts to use some form of finger reckoning were made by such men as Trachtenburg, Fibonacci, and others. Each had some specific base to work from as does Chisanbop that uses the adaptations of the Korean Abacus.

3. Success in speed and accuracy is based on psycho-motor and eye-hand dexterity. These are different in all children.

4. There seems to be no apparent correlation between the learning of Chisanbop as a young student and using it in mathematics of the real world in later life.

5. There has been unwarranted publicity - the type that appeals to parents saying in essence, "When all else fails, try this." Many forms of media have delivered this message.

6. The teaching of Chisanbop does not make association with the concrete - a one-to-one correspondence. It does, however, make association with counting to a certain extent.

7. Chisanbop teaches the four operations in different order than the mathematics programs generally do. the proponents of Chisanbop say the best order to use is addition, multiplication, subtraction and division and that is the way their material is presented.

8. It has a fun appeal to all ages and is relatively easy to learn by the teacher as well as the student - almost anyone can use it.

9. Cost for equipment is definitely minimal - the greatest expense seems to be the 25-hour workshop sponsored by Chisanbop Inc. The cost is $130 per teacher if 20 teachers register. There are simple workbooks and teacher's manuals for fingermath available at an average cost from the publisher. The publisher will conduct free workshops for teachers.

10. Society is looking at this finger reckoning method and so should we as mathematics educators.

11. Attitude from Chisanbop promoters from even a year ago has changed. On one hand, some feel that a company-based workshop is necessary for teachers to be qualified to teach. They also feel it is a complete basic program in itself. Other factions are saying it is a supplementary approach to computation in mathematics and can be learned with minimal workshop direction plus practice.

12. If used as a complete program, there is no correlation or provision for computer literacy or calculator competencies that appear to be high priorities in society.

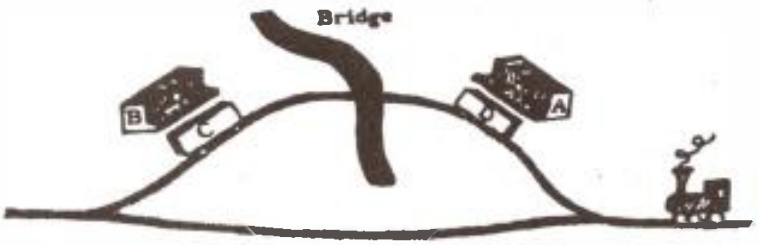
13. There is apparent enthusiasm by teachers and students but no evidence was found that this enthusiasm lasts.

Recommendation

We as a task force recommend Chisanbop/Fingermath as another supplementary approach to the teaching/learning of computational skills with whole numbers. Teachers should not be discouraged from trying out this "new" approach but should be made aware that Chisanbop is not a complete basic program in mathematics. Children have many different learning styles and teachers might find success for some using this method to supplement the basic program. It is easy and fun to learn for those in the complete spectrum of student abilities from remediation to gifted.

The following logic problem is from The Math Wizard *by Louis Grant Brandes, published by J. Weston Walch and distributed by Western Educational Ltd.*

Boxcar Problem.



A mistake was made in placement of boxcars in front of warehouses A and B, as illustrated in the diagram above. A bridge passes over the spur track which permits boxcars to pass under it, but not the engine. The engine will not fit between the bridge and the warehouse unloading points. How can the engineer switch boxcar D to warehouse B and boxcar C to warehouse A?

SOLUTION: Use the engine to push D to bridge and leave there. Take engine west, then back on spur to couple C and D; leave C and D coupled under bridge. Move engine to west end of spur and pick them up. Move C and D to a point past the west spur intersection. Leave C, then move D back past A and leave under bridge. Now pick up C and move it to warehouse A. Move the engine back to the west spur and pull D to warehouse B.