

The High/Scope Model and Mathematics

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Participatory Education

- Adults help children take initiative.
- Adults focus on children's key developmental indicators:
 - Cognitive
 - Mathematics
 - Language and literacy
 - Science
 - Arts and music
 - Social and emotional
 - Movement and physical

Learning Environment

- The classroom is organized into interest areas.
- Materials are varied and show respect for individual differences.
- Materials are stored where children can reach them.
- The teacher influences the flow of activities while giving children opportunities for active learning.

Daily Routine

- Components:
 - Plan-do-review times
 - Cleanup time
 - Snack time
 - Small-group time
 - Large-group circle time
 - Outside time
- The daily routine gives teachers and children opportunities to influence learning.

Numbers Plus Teaching Practices

Primarily in small-group activities, but also extended
across the day

- Materials
- Manipulation
- Choice
- Child language and thought
- Scaffolding

Numbers Plus: Scope

- 5 content areas (same as NCTM): number sense and operation, geometry, measurement, algebra, data analysis
- 2-5 topics in each area; e.g., geometry: shape transformation, spatial reasoning
- Key developmental indicators within each topic

Example of Key Developmental Indicators

- Content area: Number sense and operations
 - Topic: Comparing and ordering (quantity)
 - Key developmental indicators: Use one-to-one correspondence to compare the quantity of two or more groups
 - Use comparison words to compare quantities (more, fewer, same)
 - Order sets by the number of objects in them (fewest to most and vice versa)

Numbers Plus: Sequence

- Sequencing is primarily handled *within* rather than *across* activities.
- Adults observe and scaffold for each child at his or her developmental level within the sequences.
- This approach to sequencing is supported by longitudinal studies (Marcon, 2002; Schweinhart & Weikart, 1997).

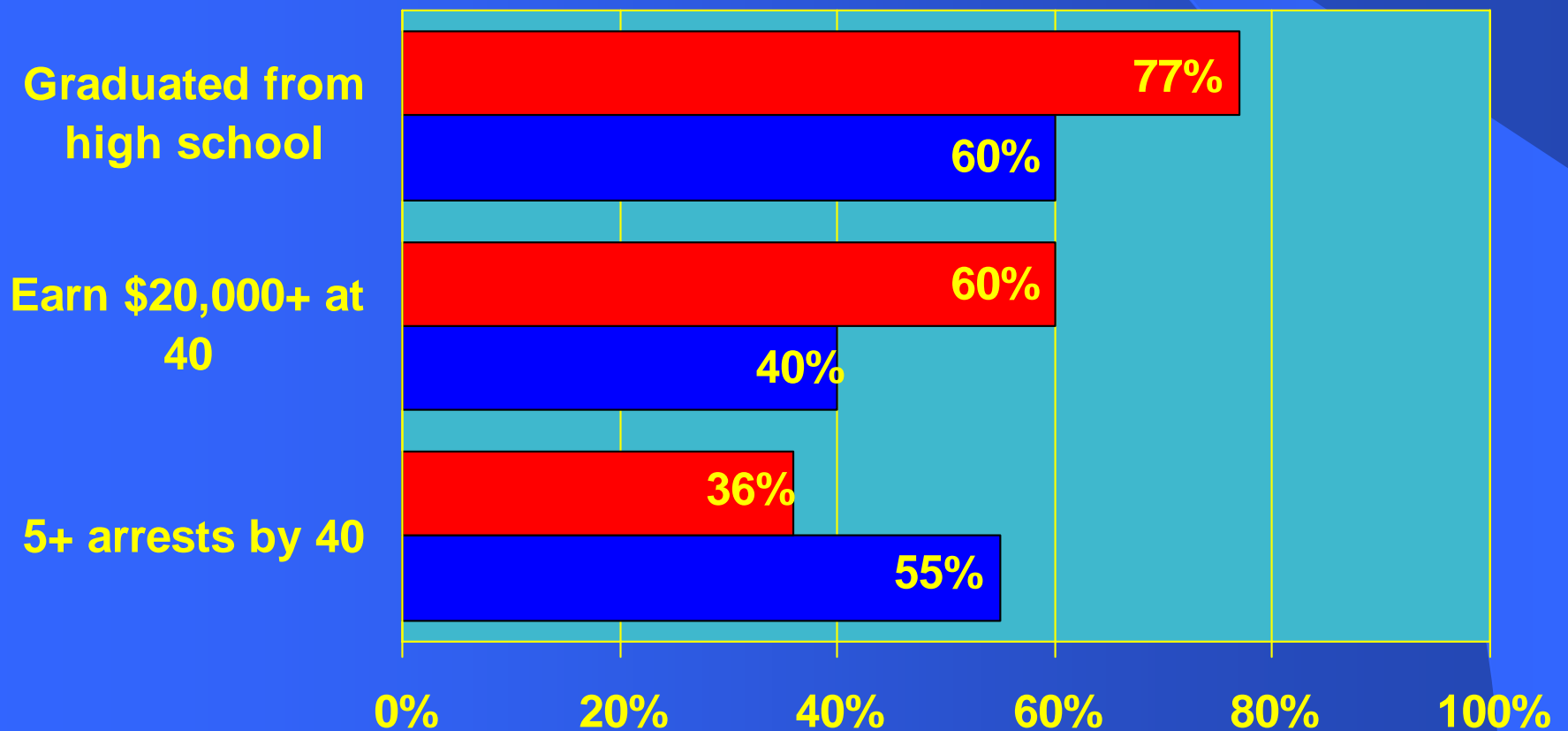
Numbers Plus Training

10-day program

- ✓ 4 in-person in summer
- ✓ 2 in-person in November-December
- ✓ 2 in-person in January-February
- ✓ 2 Web-based on trainees' own schedules

Advantages Over No Preschool

■ High/Scope preschool
■ No preschool



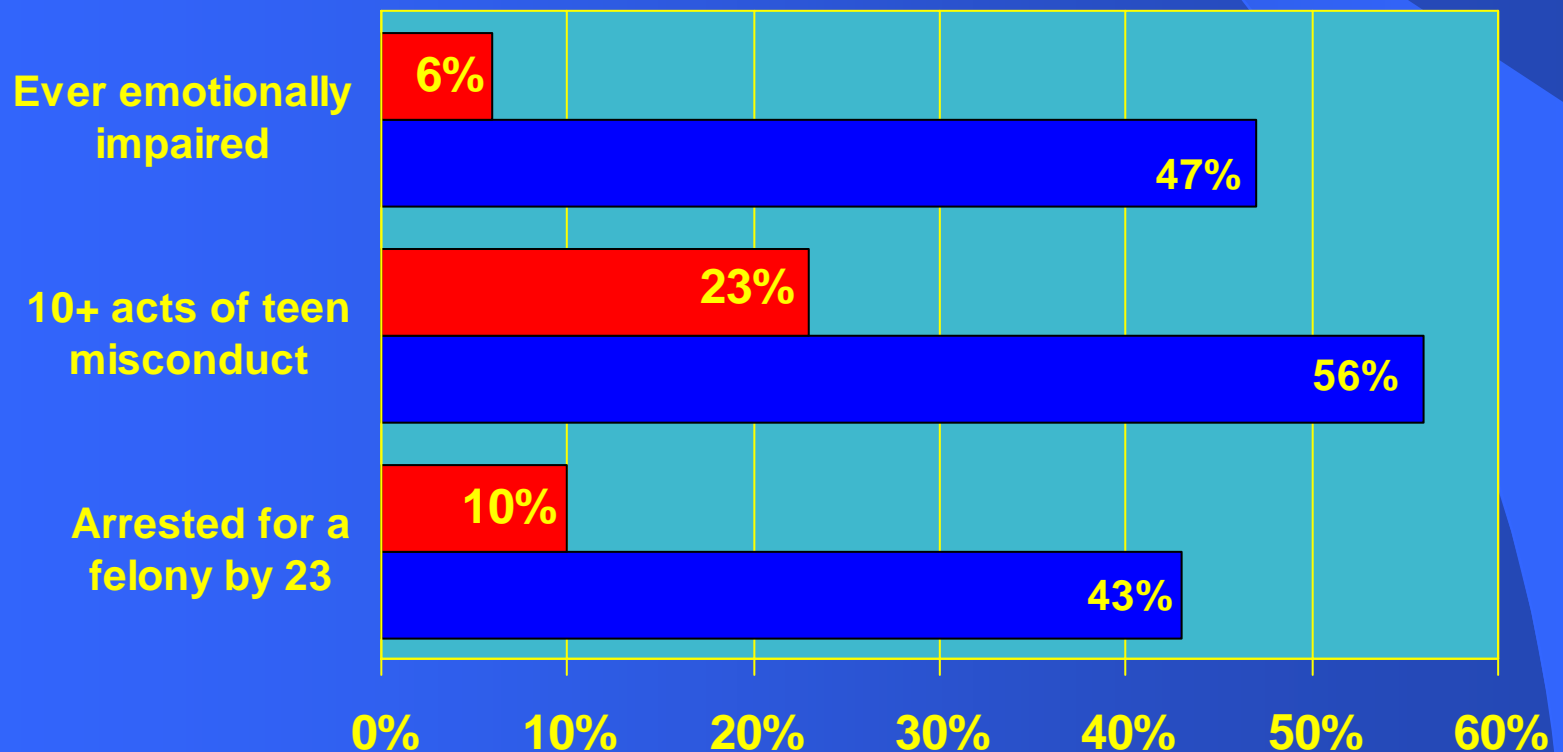
Evaluation of Math Effects

- High/Scope Perry Preschool improved math achievement, with .3 effect at ages 9 and 14.
- Randomized-trials evaluation of Numbers Plus now under way.
 - Year 1 pilot study with 6 teachers.
 - Year 2 (now) study of 148 teachers at 40 schools randomly assigned to training or not.
 - Year 3 study of trained year-2 control teachers and 50 teachers at 15 schools also randomly assigned.

Advantages Over Scripted Direct Instruction

■ High/Scope preschool

■ Direct Instruction preschool



Dissemination Effects

- 33,000 teachers trained by High/Scope trainers.
- In a survey of early childhood educators,
 - 28% received some High/Scope training.
 - 44% use the High/Scope model to some extent.
- The Training of Trainers Evaluation found significant positive effects on trainers, teachers, and children.