



Technology Assisted Reading Acquisition (TARA): Children Acquiring Literacy Naturally

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PRESENTATION GUIDELINES

- Motivation of Project
- Research Hypothesis
- Research Design
- Application
 - Limitations
- Research Analysis
- Two Possible Outcomes
- Implications of Each Outcome

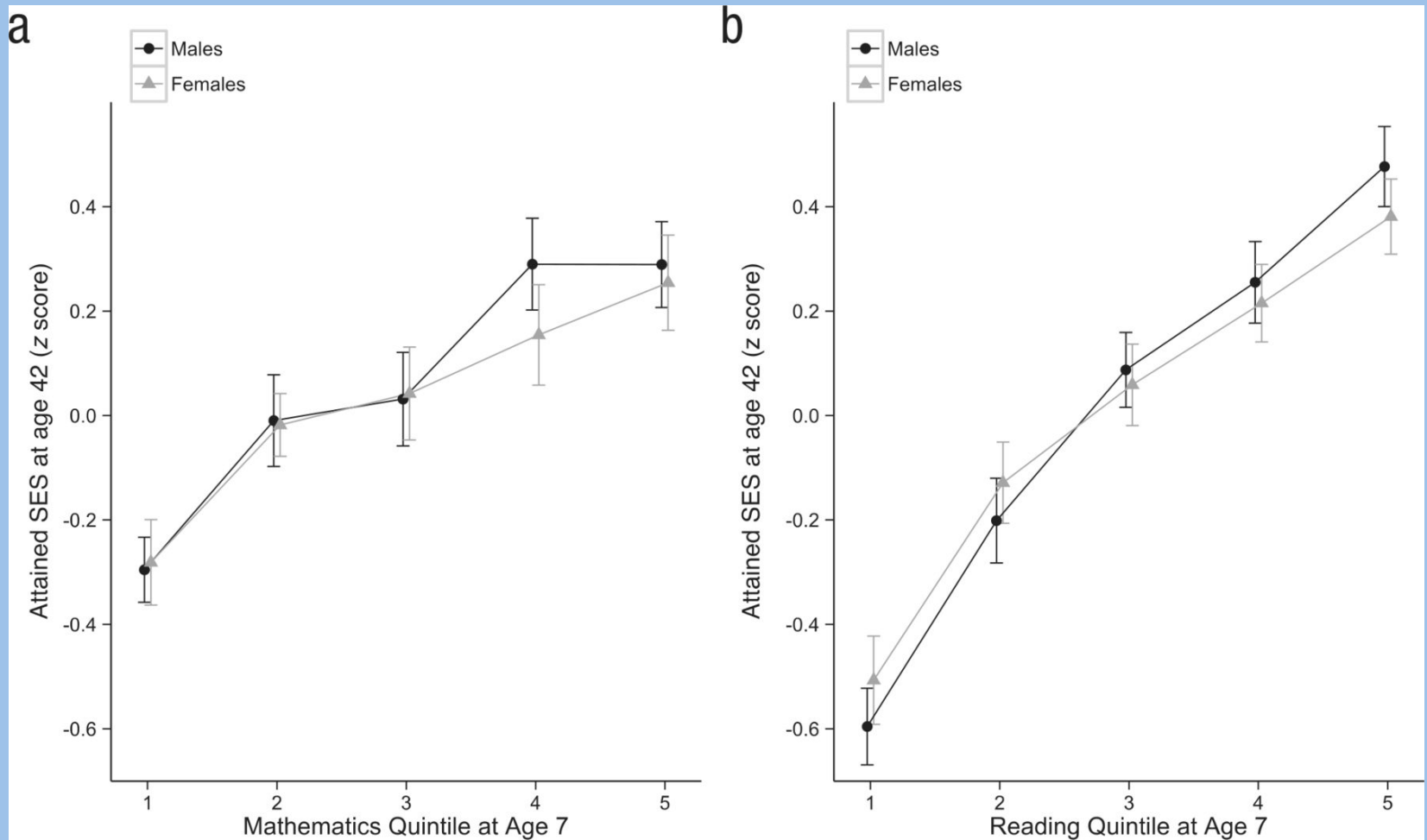
Benefits of Early Reading

- Eliminate illiteracy
- Advantages of Written Language
 - Richer Language
 - Richer Content

A small sample of words that occurred in the Picture Book Database but not in the Infant Directed Speech Database.

amazement	gathering	pathological
alphabet	gondola	perched
alligator	grumbled	ponderous
agapanthus	hoisting	requirement
beginning	improvising	reproachfully
bewildered	ladle	scrambled
blooming	learning	shepherd
business	lightning	squawking
caressed	mathematical	squelched
chorted	meticulous	struggling
concentrate	moaned	teaching
dragonflies	murmuring	thundered
education	nervously	trample
emergency	occasionally	vexatiously
fireworks	opera	versatile

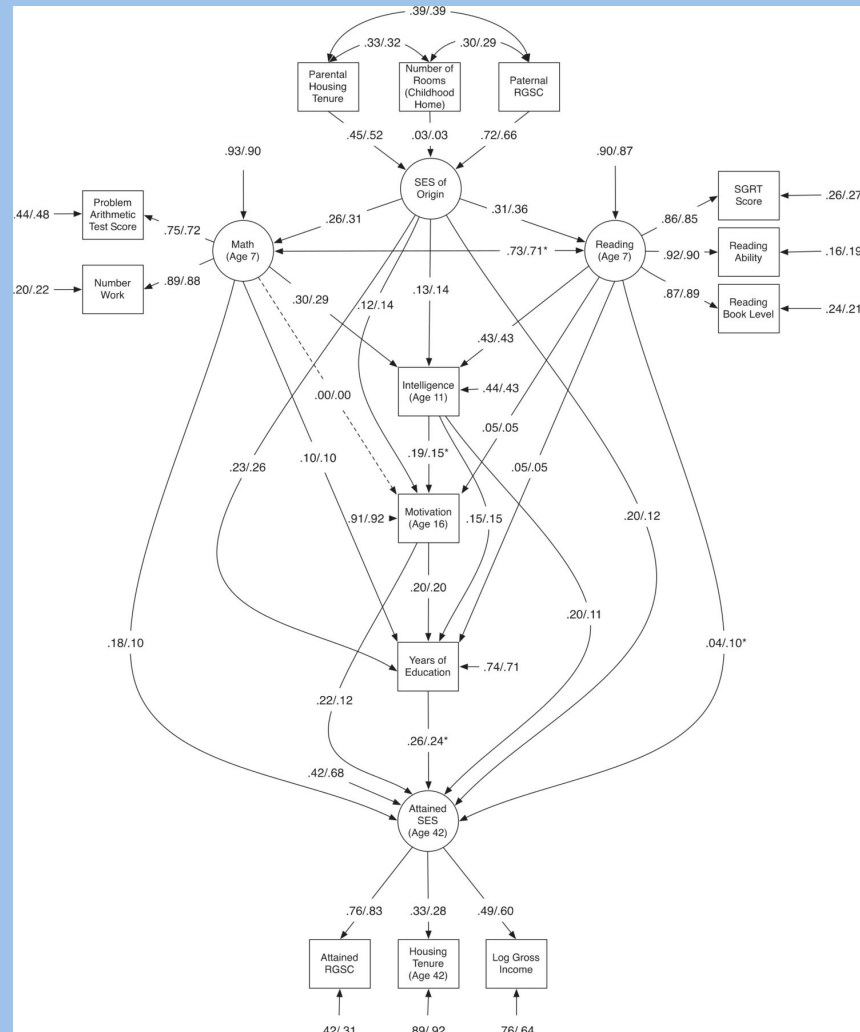
Fig. 1. Associations of mathematics ability at age 7 (a) and reading ability at age 7 (b) with attained socioeconomic status (SES) at age 42 for male and female cohort members.



Ritchie S J , and Bates T C Psychological Science
2013;0956797612466268



Fig. 2. Associations of mathematics ability at age 7 and reading ability at age 7 with attained socioeconomic status at age 42, including all control variables.



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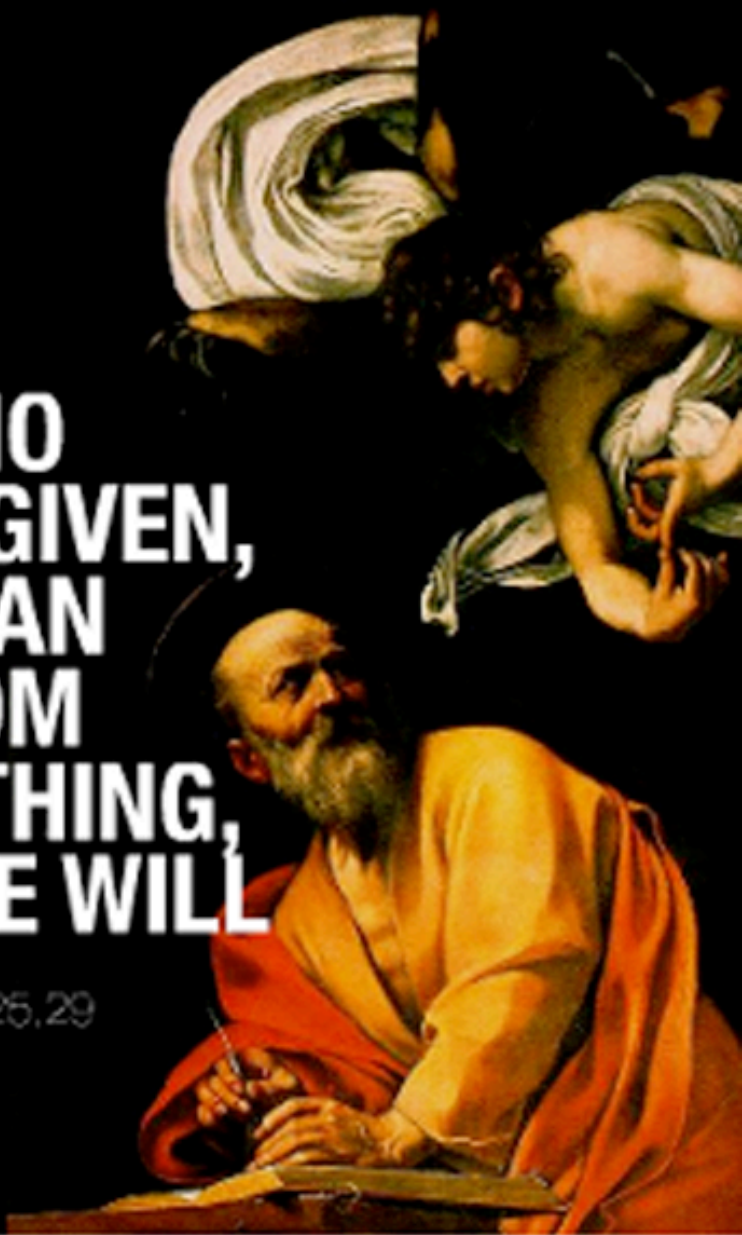




The Matthew Effect

The rich get richer
and the
poor get poorer

**FOR TO ALL THOSE WHO
HAVE, MORE WILL BE GIVEN,
AND THEY WILL HAVE AN
ABUNDANCE; BUT FROM
THOSE WHO HAVE NOTHING,
EVEN WHAT THEY HAVE WILL
BE TAKEN AWAY.** MATTHEW 25:29



Ethnography of Reading

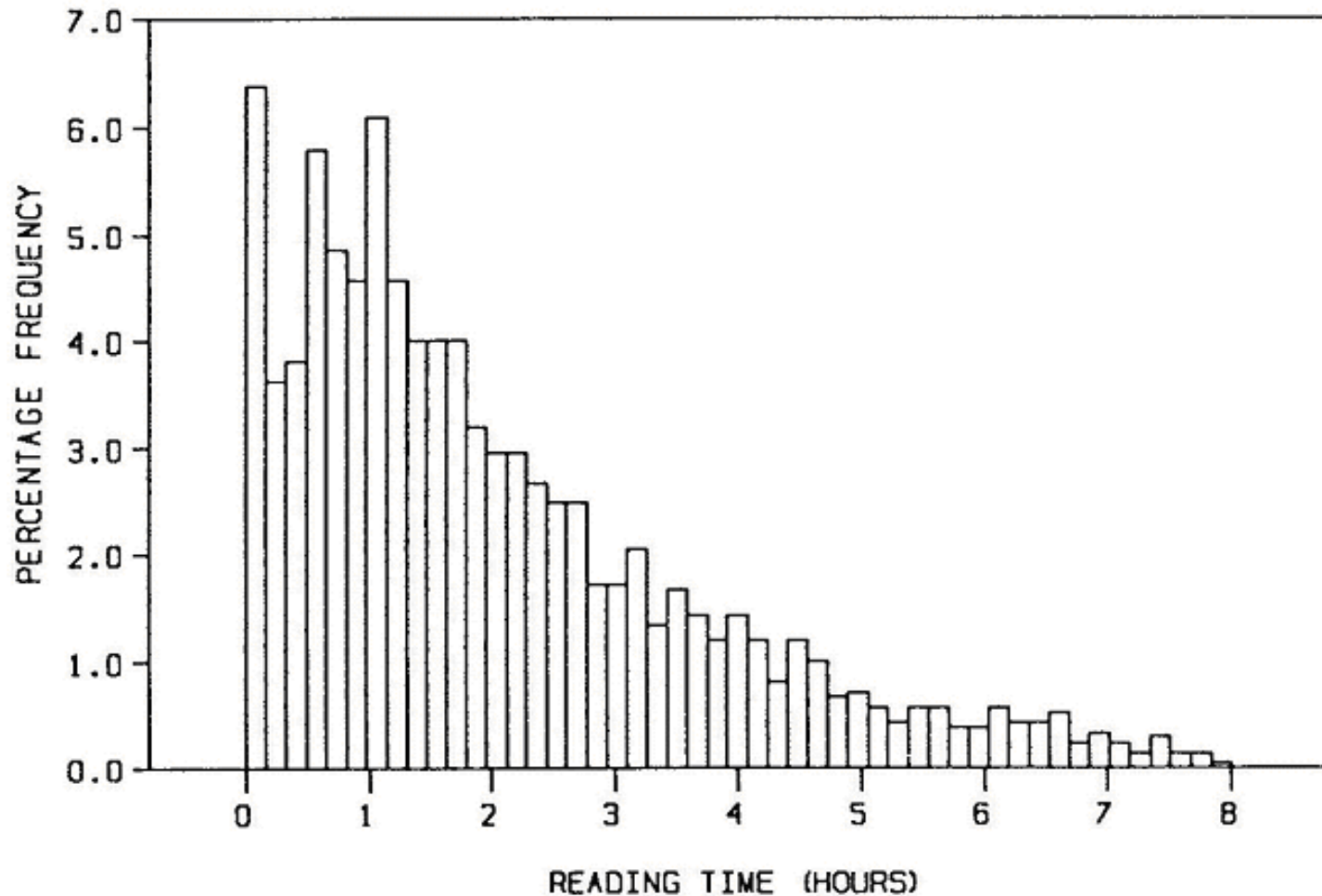


Figure 1. A frequency distribution of reading times for a sample of five thousand readers (after Sharon, 1973/74).

Some Reading Factoids

- Average Reader
 - 2 hours/day
- 15%
 - Less than 30 minutes/day
- 10%
 - More than 4 hours/day

Some Reading Factoids

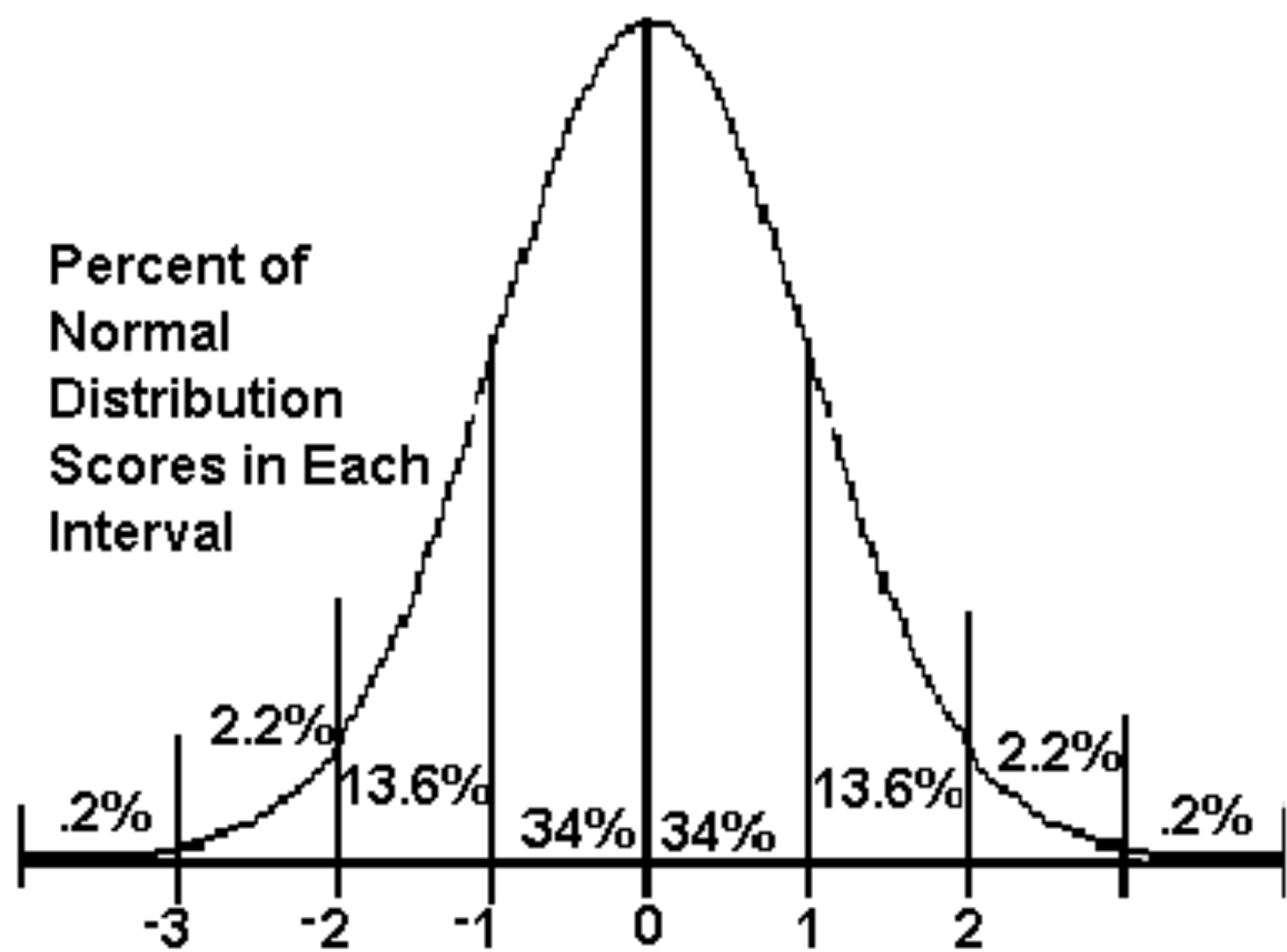
- Age 5-11
 - 30 minutes per day = 183/year
- Age 12-22
 - 2 hours per day = 730/year
- Age 23-90
 - 1.5 hours per day = 550/year

Table 3 Variation in amount of independent reading

Percentile rank ^a	Minutes of reading per day			Words read per year	
	Books	Text ^b	All readings ^c	Books	Text ^b
98	65.0	67.3	90.7	4,358,000	4,733,000
90	21.1	33.4	40.4	1,823,000	2,357,000
80	14.2	24.6	31.1	1,146,000	1,697,000
70	9.6	16.9	21.7	622,000	1,168,000
60	6.5	13.1	18.1	432,000	722,000
50	4.6	9.2	12.9	282,000	601,000
40	3.2	6.2	8.6	200,000	421,000
30	1.8	4.3	5.8	106,000	251,000
20	0.7	2.4	3.1	21,000	134,000
10	0.1	1.0	1.6	8,000	51,000
2	0.0	0.0	0.2	0	8,000

^aPercentile rank on each measure separately. ^bBooks, magazines, and newspapers. ^cBooks, magazines, newspapers, comic books, and mail.

Percent of
Normal
Distribution
Scores in Each
Interval



Why Can't I Skip My 20 Minutes of Reading Tonight?

Student "A"
reads **20 minutes**
each day

3600 minutes in
a school year

1,800,000 words



90th percentile

Student "B"
reads **5 minutes**
each day

900 minutes in
a school year

282,000 words



50th percentile

Student "C"
reads **1 minute**
each day

180 minutes in
a school year

8,000 words



10th percentile

By the end of 6th grade Student "A" will have read the equivalent of 60 whole school days. Student "B" will have read only 12 school days. Which student would you expect to have a better vocabulary? Which student would you expect to be more successful in school...and in life?

(Nagy & Herman, 1987)

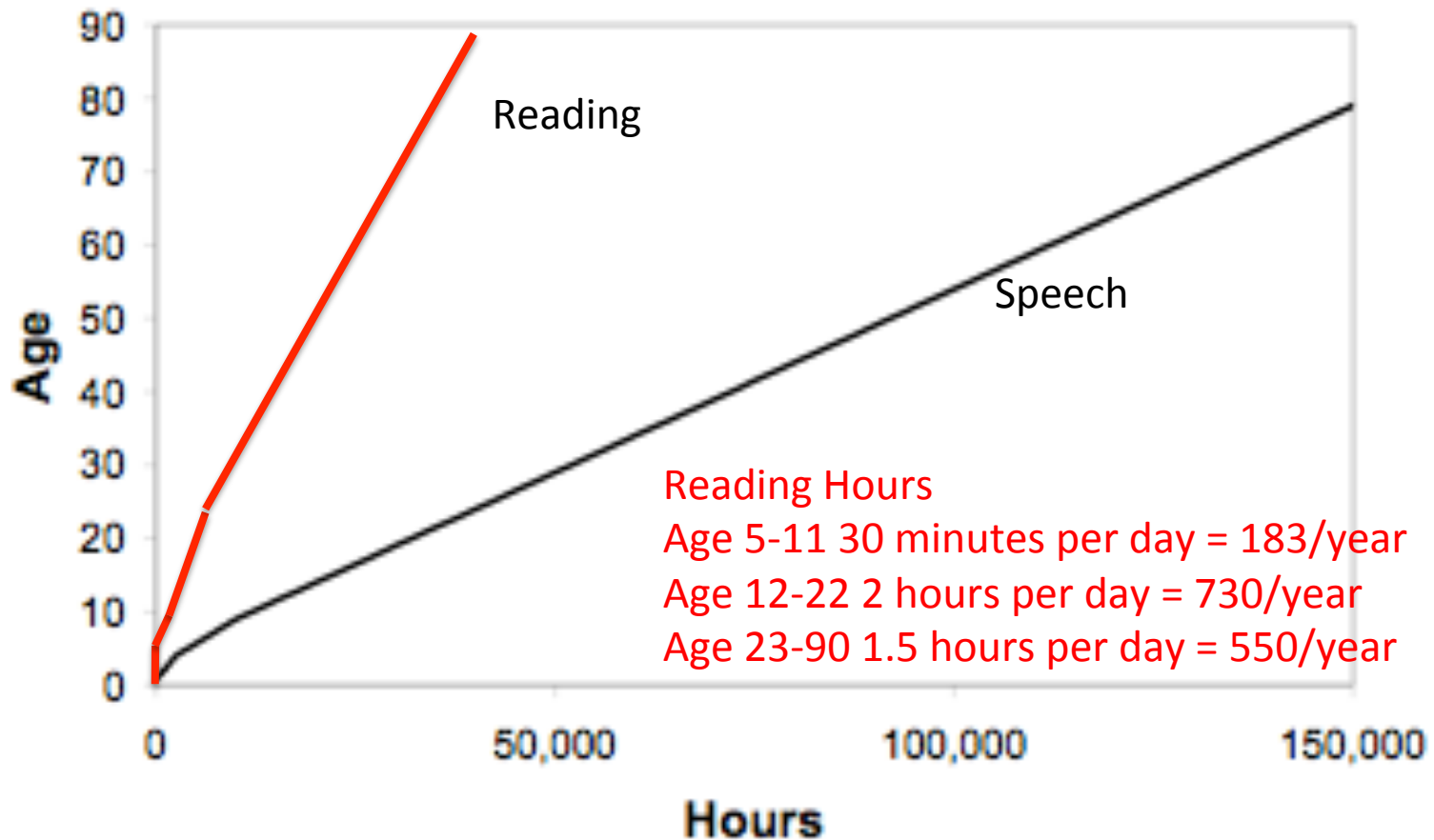


Figure 4: Estimated amount of speech a human being hears as a function of age.

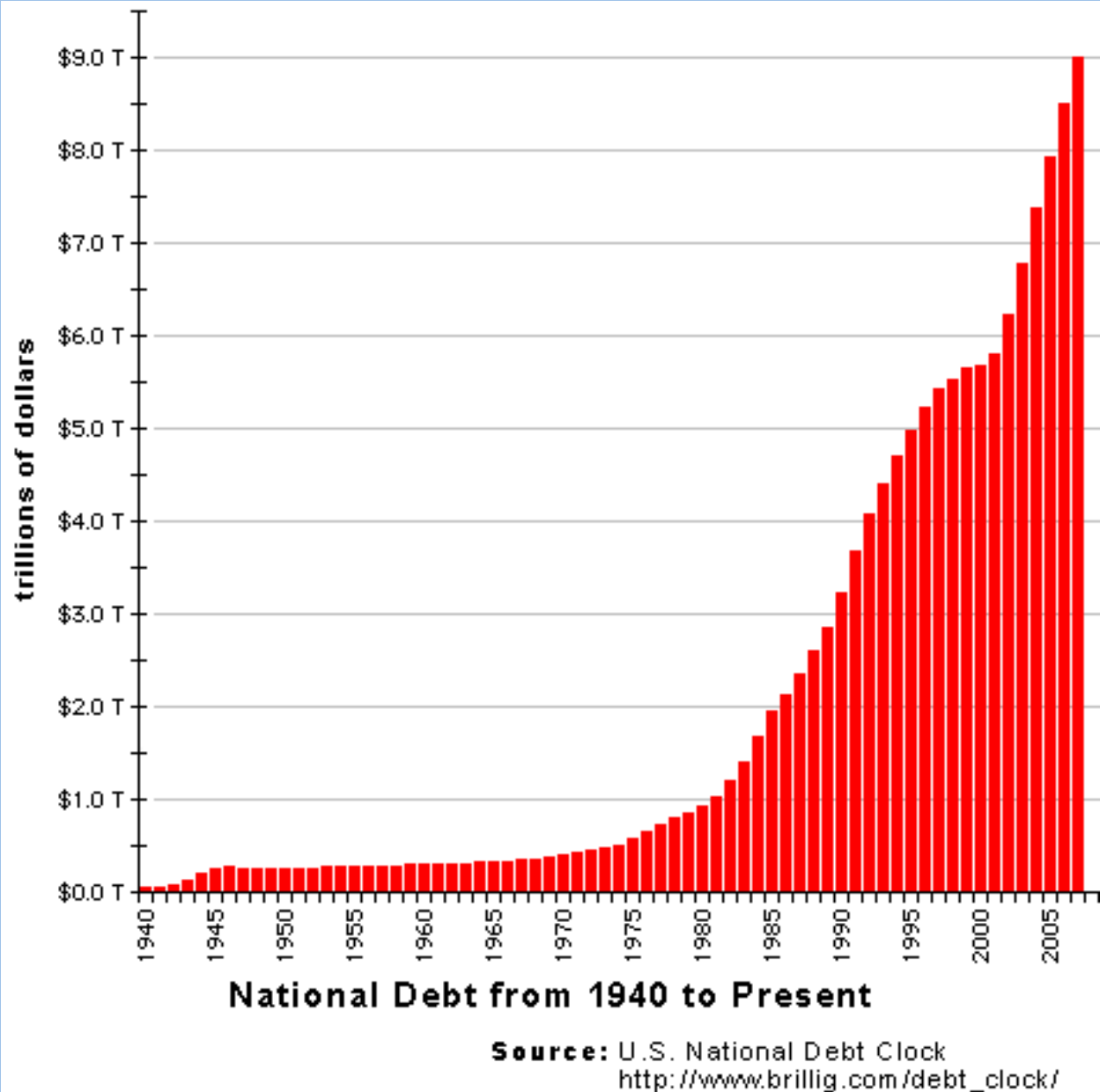
Moore R K. "A comparison of the data requirements of automatic speech recognition systems and human listeners", Proc. Eurospeech, Geneva, pp. 2582-2584, 1-4 September, 2003.

U.S. National Debt



Economic Crisis

[worldclock](#)



Cost of Literacy

- Education
 - 35 million students in K-8
 - \$5,000-14,000 per child
 - Estimated Cost \$670 Billion
- Goal
 - Universal Literacy
 - Low Cost

Cost of illiteracy

- illiteracy
 - 75% on welfare cannot read
 - Cost \$240 Billion
- Goal
 - Universal Literacy
 - Low Cost

Cost of Implementation

- 4 Million New Children Each Year
- Less Than \$1000 per Child
- Less Than 5% of Current Expense