should be at a level lower than the grade in which the material is to be used.

The following conclusions are drawn on the basis of the data:

1. The readability level of the selected commercial texts, as determined by the formulae, seems to be generally above the assigned grade level.

2. There is considerable variation of readability level among the textbooks considered.

3. The variation within each textbook indicates that some portions of texts should be comprehended by most students, while other portions of the same text are written on a relatively difficult level.

A logical approach suggests that the readability level should be rather easy in the first part of the book, and become progressively more difficult in later parts. It was noted that the easier reading material in the texts studied was not necessarily at the beginning of the books, and that the more difficult reading material was dispersed throughout the books.

When the results of this study are compared with the results of a study by Smith and Heddens on the readability of experimental mathematics materials, it can be concluded that the commercial texts are easier reading than the experimental materials. Although the range of both studies is rather wide, it seems apparent that the average grade level is lower for the commercial texts.

Successful arithmetic reading material must be presented on the child's independent reading level and not on his frustration level. If educators are to be successful in teaching arithmetic, either the reading level of the arithmetic material must be lowered or the reading level of the child must be improved, or both.

---

Fractions—names and numbers

What do we tell a child who asks why we cannot replace \( \frac{a}{b} \) by \( \frac{1}{b} \)? The statement, "$3 \text{ divides the numerator of } \frac{a}{b} \"$ (clearly, 3 does not divide the numerator of \( \frac{1}{b} \)).

To answer this question a distinction must be made between numbers and names of numbers. The fractions, \( \frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \ldots \), are all names of a certain rational number. This number has many non-fractional names as well (e.g., \( \frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \ldots \), and \( \sqrt{16} \)), and we may use any one of these names in statements about the number. For example, "$\frac{1}{2} = (\frac{5 \times 8}{16}) \\frac{2}{3} = (\frac{5 \times 8}{16}) \ldots \), etc., all make the same statement about the number having the name, "$\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \ldots \), etc.

On the basis of this distinction between a number and its name, our opening statement should read, "$3 \text{ divides the numerator of } \frac{a}{b} \"$

since we are making a statement about the name "$\frac{a}{b} \"$ and not the number it denotes. Hence, there is no reason, a priori, to expect this statement to be true when a different name is inserted—whether this name refers to the same number or a different number.

It is not suggested that the distinction between a number and its name is thrust upon the child by educators, but, teachers should be aware of it and, by example, should provide their students with an intuitive understanding of this distinction.---JOSEPH M. SCANDURA, State University of New York at Buffalo.

† Failure to distinguish between a number and its name also explains the statement "3.84724 is larger than 3.2" by U.S.S. and its world famous economist. After all, he measured the numbers with a ruler.

It is also worth noting that there are relatively few places in mathematics where failure to distinguish between objects and their names results in confusion. The question raised in the inductive is, perhaps, a legitimate cause of confusion, whereas few liberties would share an economist's problem.

The Arithmetic Teacher