

## GENERAL CONCLUSIONS ON TRANSFER OF TRAINING

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For over twenty-five years summaries of investigations concerned with the transfer of training have been made rather periodically. A considerable number of the investigations summarized have been conducted under the artificial conditions of a laboratory while most of them have been under conditions far removed from the life situations of learning.

This report is the result of a rather critical study and summarization of over one hundred investigations in normal learning situations. These investigations have been, therefore, in education. Those in the area of pure psychology have been intentionally omitted. The following conclusions seem to be conservative, reasonable, and based upon the evidence produced.

1. Transfer of training is a fact, but it may take place and it may not. It is not automatic.

2. It may be positive, negative, or zero. The theory of formal discipline seemed to overlook the fact that it was not always positive.

3. Direct training produces a greater amount of improvement than indirect.

4. Training usually results in an increase in the specific function trained. Improvements in like functions, if they occur, are relatively small, varying "with the amount available for transfer and the degree to which conditions are made favorable" for transference. In relatively narrow mental functions transfer does exist in useful amounts.

5. There is no scientific support for a belief that an all-round improvement in a mental function should be expected from training in a specific field.

6. Wherever there is a noticeable degree of positive transfer there seem to be common elements, but the theory of identical elements finds no support in neurology or physiological psychology.

7. "There are elements of situations so fundamental in their nature that they occur again and again in connection with almost anything else." It is reasonable to infer that in these cases some transfer will be found.

8. Knowledge of a general theory or principle seems to transfer more consistently than other factors. The learner, however, can be aided in making a transfer by being made acutely aware of the possibilities of the transfer sought.

9. A small transfer may be very valuable. (When no direct method of obtaining the trait has been developed, example; cooperation through athletics or play.)

10. Transfer must be worked for directly. It is a function of teaching. Teach for transfer, for it is a worthy aim.

## SOME POSSIBLE DEDUCTIONS FROM THE ABOVE FOR TEACHERS

1. Teachers should be acutely aware of relationships that may result in transfer.

2. Emphasis should be upon direct training in concrete, life situations instead of upon abstract training built upon anticipated transfer.

3. A teacher is not justified in speculating upon results occurring from transfer: a) When he could obtain the hoped-for results directly; b) When, thereby, he is leaving undone training known to produce valuable results; c) When no recognized authority in the field of modern, educational psychology would support his opinion as well founded.

4. A teacher's duty is to be on the lookout for negative transfers, so as to avoid them. (The "translation" method of teaching foreign languages may result in a high school credit, but also may interfere with ability in fluent reading.)

5. While it may be safe to act upon the assumption that a pupil may learn better what he practices directly, than what he does not, a teacher may safely assume that no one knows exactly what all factors in the practice are. He must, therefore, guard against unfavorable concomitant learning such as dislike of or boredom with the learning situation.

6. A teacher may facilitate transfer at all times and at every opportunity by: a) Selecting situations that carry ele-

ments that are desirable for transfer, especially those applying to the child's own life; b) Emphasizing the elements that are expected to transfer; c) Helping to develop a conscious ideal that will spread the learning to other situations; d) Encouraging the transference by supplying and indicating the opportunities not incidentally, but at every point and in specific detail; e) Explaining to students just what is being sought; (To the extent of explaining to those who can understand the theory of the transfer of learning; f) Stimulating an alertness to possibilities of transfer.

7. In general, in selecting situations for teaching purposes, preference should be given to those having elements that occur in many situations in life.

8. Transfer has a positive relation to intelligence; any pupil may make it by chance, but the teacher should not assume that this will occur.

9. A successful teacher will guide pupils in generalizing, in practice in applying their generalization, and in forming habits of *consciously* noting and seeking opportunities for applying them.

Whipple's general conclusions are that there is evidence that transfer occurs in some degree and that "some of the most important agencies of transfer are to be

found among higher level relations, in generalized attitudes, words, ideals, sets, and ways of going about mental operations."

More recently, students of the problem are saying that it is now a problem of "educational engineering," "one of so organizing the materials and methods of instruction to guarantee the largest possible amount of positive transfer."

The following bibliography contains summaries of studies in transfer of training given in time order:

- Rugg, Harold O. *The Experimental Determination of Mental Discipline in School Studies*. Warwick and York, Baltimore, 1916.
- Thorndike, E. L. *Educational Psychology*, Vol. II. Teachers College, Columbia University, New York, 1921, Ch. XII.
- Judd, C. H. *Psychology of Secondary Education*. Ginn & Co., Boston, 1927, Ch. XIX.
- Whipple, Guy M. "Transfer of Training." *Twenty-seventh Yearbook*, Part II, N. S. S. E., Public School Publishing Co., Bloomington, Illinois, 1928.
- Orata, P. T. *The Theory of Identical Elements*. Ohio State University Press, Columbus, 1928.
- Norem, Grant M. *Transfer of Training Experiments Revalued*. Iowa City, Ia., 1933.
- Orata, P. T. "Transfer of Training and Educational Pseudo-science." *Educational Administration and Supervision*, April, 1935, Pp. 241-258.
- Brownell, W. A. "Theoretical Aspects of Learning and Transfer of Training." *Review of Educational Research*, 6:281-90. June, 1936. (Reviews and summaries.)