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Abstract

A COMPARISON OF TWO METHODS OF IMPROVING MATH ATTITUDES
IN INTERMEDIATE TEACHERS AND COUNSELORS

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This study compared the effects of two counseling curricula, each taught to 41 teachers and counselors in conjunction with the same spatial visualization skills training curriculum, on the abilities and attitudes toward mathematics and the helping responses of upper elementary teachers and counselors from all levels. The hypotheses investigated in the study were:

1. Treatment HRD will result in significantly greater improvement in intermediate teachers' attitudes toward teaching mathematics than will Treatment E.
2. Teachers and counselors from Treatment HRD will be able to communicate significantly more helpful responses to student- or peer-presented mathematics problems than will teachers or counselors in Treatment E.
3. Treatment HRD will result in a significantly greater increase in teachers' and counselors' spatial and mathematics abilities than will Treatment E.
4. Treatment HRD will reduce mathematics anxiety in teachers and counselors significantly more than will Treatment E.
5. Treatment HRD will improve attitudes toward mathematics as measured by the Fennema-Sherman scales significantly more than will Treatment E.

an "action model." There seems to be an ongoing debate among the proponents of various math avoidance interventions about the relative merits of one approach over the other.

The "Eclectic" counseling insight model combined with the spatial curriculum produced positive gains with primary teachers in the fall of 1979. Results are displayed in Table 2.

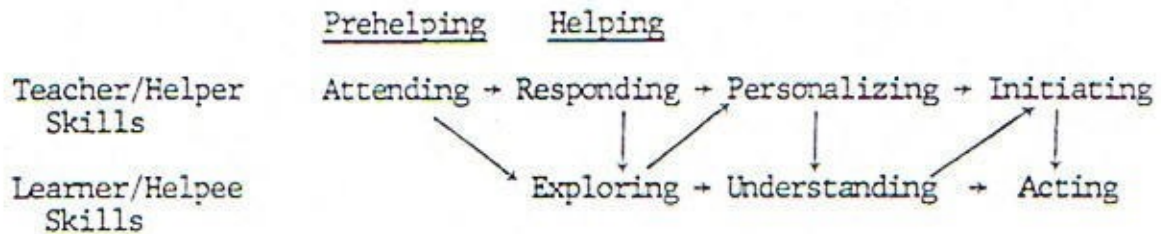
The Human Resource Development Model

Although both insight and action approaches individually can provide some positive results, the research on the development of the Human Resource Development (HRD) model shows that each is incomplete without the other (Carkhuff, 1976). Most insight approaches fail to develop the insights programmatically so that the client can "own" them. Thus, teachers go away from class excited about their new awarenesses, but not really sure what to do next to translate their awareness into action. Similarly, while the action approaches develop their programs effectively, they fail to consolidate whatever behavior changes they have accomplished. They neglect to complement the action with insights so that the learner can guide his or her own life (Carkhuff and Berenson, 1976, 1977). In order to help human beings to change behavior, the insight and action approaches must be integrated into one effective helping process. Carkhuff's Human Resource Development

model is such an integrated insight-action approach. It includes a learning process, helper skills to facilitate the learner's movement through the process, and helping outcomes. Figure 4 is a diagram of the Human Resource Development model.

Figure 4

HUMAN RESOURCE DEVELOPMENT MODEL



The teacher/helper skills of attending, responding, personalizing, and initiating are cumulative; and, when used, help the learner/helped move through the stages of the learning process from exploring to understanding to acting. The arrows show the interrelationships of the two sets of skills. The entire process and/or each part of the process is recycled continuously in a helping/learning situation.

Carkhuff uses the terms "helper"/"helped" in his description of the helping process and his model. These terms are interchangeable with "teacher"/"learner" but also

can describe the two roles in a team of teachers in the project class itself when one teacher is helping the other. Thus, the more generic terms "helper"/"helpee" will be used for purposes of this review.

The Helping Process

In order to demonstrate a change or gain in behavior, the helpees must act differently from the way they did before (i.e., stop avoiding math). In order to act effectively, the helpees must have diagnosed where they are in math in relation to where they want or need to be. They must understand accurately their goals about math attitudes and ability and the ways to achieve them. In order to understand their goals, the helpees must explore their present attitudes and abilities in math experientially. These three learning or relearning processes are the phases of helping through which the helpees must be guided (Carkhuff and Berenson, 1976).

The helpees must first explore where they are in relation to their worlds and the significant people in their worlds. They must next understand where they are in relation to where they want to be. Finally, they must act to get from where they are to where they want to be. With the feedback from their action, they can recycle the learning process for more extensive exploration, more accurate understanding and more effective action (Carkhuff and Berenson, 1976).