Chapter I

Introduction

1.1 A Brief Description of the ANISA Model

One of the most obvious phenomena of the twentieth century has been the proliferation of knowledge. With the passage of each year there is very simply more to know about. This rather basic observation has exceedingly important implications for the practice of education. An educational system that simply transmits knowledge to the students is not a viable one, as there is far too much knowledge to transmit. Even now, the volume of material in any single field may well dismay even the most eager novitiate. The situation will certainly exacerbate as we continue to approach the year 2000.

If an educational system that simply transmits information is not entirely adequate, what system should supplement it? Dr. Jordan and the ANISA staff at the University of Massachusetts feel the new system must teach learning competence. The focus of education must be on learning how to learn as well as on learning specific facts. Dr. Jordan also thinks that "...no significantly new and promising educational system can be developed unless it springs from a fresh vision of the nature and destiny of man," (Jordan, 1973). Consistent with this view, the ANISA model has its philosophical roots in Alfred North Whitehead's process philosophy, a philosophy which has not previously been extensively applied to education. This philosophical foundation is apparent in the following passage: "The ANISA model rests upon the premise that the reality of being is in the process of becoming and that becoming is the translation of potentiality into actuality" (Jordan, 1973). The supporting

premise is reflected by the ANISA definition of development as the process of translating potentiality into actuality. The translation of the infinitude of psychological potentialities into actuality constitutes the development of learning competence. This translation is effected by the child's interaction with the environment.

This view of development is supported and reflected by a theory of teaching and a theory of curriculum. The theory of teaching reflects the view of human development by defining teaching in terms of arranging environments and guiding the child's interaction with environments for the purpose of achieving learning competence. The theory of curriculum is based upon the categorization of environments: "The physical environment which includes everything except human beings; the human environment which includes all the human beings one comes in contact with; the environment of unknowns and unknowables--the ultimate mysteries in the cosmos which consciousness enables us to be aware of even if we do not know what constitutes them; and the self--a reflection of the above three environments in a particular human being" (Jordan and Streets, 1973). These environments in part comprise the content curriculum. The curriculum also includes all the psychological processes which must be mastered in the development of learning competence. The psychological processes have been organized into five categories: psychomotor, perceptual, cognitive, affective, and volitional. These five categories comprise the process curriculum. In addition there are three interrelated symbol systems which mediate the assimilation of the content curriculum and the mastery of the process curriculum. These are mathematics for the physical

environment, language for the human environment, and the arts for environment of unknowns and unknowables. It is these three symbol systems that make up the remainder of the content curriculum. As the processes are important for each aspect of the content, the process curriculum fosters transfer of knowledge in the content curriculum. Finally, the fusion of content and process underlies the formation of attitudes and values in the child.

The ANISA model provides the basis for establishing a comprehensive educational system with the principal objective of developing learning competence. The model is supported by a philosophical basis which views reality as the process of becoming and by an articulate theory of development which reflects the philosophical basis. Furthermore the ANISA theories of pedagogy and curriculum are direct ramifications of the ANISA theory of development and as a consequence of this consistency should facilitate the development of learning competence.

1.2 Statement of the Problem and Purposes of the Investigation

The ANISA model's major student behavior objective is the development of learning competence. Learning competence is defined as having control over the processes of differentiation, integration, and generalization, and is affected by mastering the psychological processes in the process curriculum. As of September 1973, seven of these processes were well defined.

For many educational programs there are, in addition to student behavior objectives, implementation objectives. Implementation objectives are in a sense, statements of how the program should operate after it has been installed in a particular educational institution. For the ANISA

model, an important group of implementation objectives is concerned with the specification of the physical and human environment in the classroom.

In view of the importance of the student behavior objective and implementation objectives for the ANISA model, our first year evaluative activities were organized around the following two major evaluation goals:

1. To assess the accordance of the physical and human environment with the ANISA model's principles for designing an environment to foster learning competence,

2. To assess aspects of student learning competence. In the first year, the concern was with seven of the processes underlying learning competence.[1] These were: Seriation, classification, attention, verticality, figure-ground perception, inflections, and cooperation.

The major problem in the evaluation of any educational program is the development of a methodology that can provide information for decision-making about the program. In general, the steps that must be accomplished to develop such a methodology are:

1. Definition of program objectives,

2. Selection or development of instruments to measure the attainment of program objectives,

3. Selection of an experimental design that is appropriate for providing the desired information,

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[1] We note that the ANISA staff thinks of inflections and cooperation in somewhat different terms that we have done in this report; however, for convenience, we have grouped them with the five processes.

4. Development of a system for reporting the information provided

     by the evaluation.

Since the program objectives for step one were already well-defined, our activities centered on the completion of steps two to four for each goal.

Since this year's work was the beginning of what was expected to be a three year evaluation of the ANISA model, we had a third area of concern and that was:

3. To outline some evaluation and research activities for the

     second and third years of the project.

1.3 Personnel

The following individuals from the Laboratory of Psychometric and Evaluative Research of the School of Education at the University of Massachusetts were formally involved in the evaluation activities:

James Algina - Graduate Research Assistant;

Mary Lyn Bourque - Graduate Research Assistant;

Ronald K. Hambleton - Associate Professor of Education and
                            Psychology; and

Barbara Larrivee - Graduate Research Assistant.

In addition, numerous others from the Laboratory assisted in the development of tests, collection of data and writing of the final report. In particular, we would like to acknowledge the participation of Dr. Hariharan Swaminathan, Larry Cadorette, Wally Carter, Linda Cook and William Welsh.

1.4 Outline of the Final Report

The remainder of the final report is organized into four chapters. In chapter two we have reported the essentials of our methodology and some limitations of the methodology. In chapter three we have reported the results of our assessment of the classroom environment. Chapter four includes a brief description of the development of measures to assess learning competence and the results that were obtained by administering these tests to the ANISA students and a control group school. In chapter five we have summarized our findings and indicated directions for research and evaluation in Year II and Year III of the project.