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ABSTRACT

The paper describes common problems associated with special education curricula used in developing countries. Some of the problems are: (1) an emphasis on rote recall rather than comprehension and application of knowledge; (2) a focus on academic rather than functional skill training; (3) the teaching of generic, readiness, and preacademic skills rather than direct instruction of skills in the form in which they are or will be required in common daily tasks. Recommendations include: development of basic needs curricula founded on an analysis of the social, cultural, economic, and geographic characteristics of the students' environments; the development of curricula based on the analysis of both current and future needs in the students' environments; and the integration of academic and practical skill training. The paper also discusses step-by-step procedures for using ecological inventories to develop curricula that incorporate these recommendations. These curricula are ecologically valid for contemporary and future urban and rural environments in various developing countries. (Author/DB)

Ecological Inventories and Curriculum Development for Special Education in Developing Countries[1]

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Abstract

This paper describes a number of common problems associated with special education curricula used in Developing Countries. Some of the problems discussed are (a) an emphasis on rote recall rather than comprehension and application of knowledge; (b) a focus on academic rather than functional skill training; (c) the teaching of generic, readiness, and preacademic skills rather than direct instruction of skills in the form in which they are or will be required in common daily tasks. A number of recommendations for curricular revision are reviewed. Some of the recommendations discussed include (a) the development of basic needs curricula founded on an analysis of the social, cultural, economic, and geographic characteristics of the students' environments; (b) the development of curricula based on the analysis of both current and future needs in the students' environments; and (c) the integration of academic and practical skill training. The paper also discusses the step-by-step procedures for using ecological inventories to develop curricula that incorporate these recommendations. These curricula are ecologically valid for contemporary and future urban and rural environments in various developing countries.

In many countries, special education curricula are merely simplified versions of the regular education curricula and share many of the same problems. Some of these problems are described below.

1. Often both regular and special education curricula in many Developing Countries place too great an emphasis on rote recall rather than comprehension and application of knowledge (Duminy, 1973; Mbilinyi, 1977; Rao, 1983).

2. Often too, there is a separation of school and community. As a result, curricula tend to focus on academic rather than functional skill training. The skills taught in the academic curriculum are frequently unrelated to the students' common daily task demands. These curricula do not relate to the students' social, cultural, and economic environments (Duminy, 1973; Hawes, 1979; Mbilinyi, 1977). This problem is particularly prevalent in rural environments where curricula are often primarily urban in their orientation

(Hawes, 1979; Hawkins, 1980; Mukherjee & Singh, 1983). Skills are taught that are not required in the students' environments whereas skills that are required are not taught.

3. Many of the curricula designed for young children or low functioning students teach performance of generic, readiness, and preacademic tasks. These tasks include putting pegs in a pegboard, stringing patterns of beads, and completing picture puzzles. These tasks teach generic skills such as finger dexterity; color, shape, and size discrimination; and eye-hand coordination. Improvement in the performance of these generic tasks often does not generalize to an improvement in the performance of other tasks requiring the same skills (Hammill, 1982; Stokes & Baer, 1977). A number of authors have recommended that skills should be taught directly in the form in which they must eventually be performed (Baine, 1987; Bernbaum, Goodnow, & Lehman, 1974; Gersten & Carnine, 1984; Hammill, 1982).

In summary, many of the curricula fail to teach performance of tasks that are functional. Functional tasks are those frequently required in school, home, vocational, and/or community environments. These tasks include routine, daily chores as well as social, communication, and recreational activities related to the maintenance and development of the environment and one's physical, social, emotional, and intellectual conditions. Functional tasks may also include activities of low frequency but high importance, for example, treating a scorpion bite.

A number of writers have recommended a basic needs approach to curriculum design. A basic needs curriculum is based on an analysis of the social, cultural, and economic features of the geographic region in which the students live. These curricula teach the specific skills a defined group of students require to function in their daily lives. Academic skills are related to practical, common, daily task demands. The skills learned in math, social science, geography, history, science, and so forth are merged with practical skill training in, for example, agriculture, fishing, crafts, life skills, home and family management, health, nutrition, and cottage and service industries (Botti, Carelli, & Saliba, 1979; Mellbring, Osterling, & Persson, 1983; Saunders & Vulliamy, 1983; Tietze, 1985; UNESCO/UNICEF, 1978). Several authors have also recommended that curricula should teach the skills required in both contemporary and future environments. The long-term needs of individuals, their families, and the community must be considered (Baine, 1986; Chege, 1984; IIEP, 1977; Hulley & Templer, 1984).

The remainder of this paper describes the use of an ecological inventory to develop curricula that incorporate the foregoing recommendations. These curricula are ecologically valid for contemporary and future

urban and rural environments in various Developing Countries. The ecological inventory techniques discussed are based on a modification and expansion of methods initially described by Brown, Branston, Hamre-Nietupski, Pumpian, Certo, and Gruenewald (1979). The purpose of an ecological inventory is the development of curricula for children and youth with various handicaps living in Developing Countries where the curricula would:

1. be ecologically valid for specific cultural, economic, geographic, urban, and rural environments in Developing Countries;
2. provide a comprehensive catalogue of norm-referenced, functional tasks from which specific tasks could be selected to build an individualized curriculum for a particular individual or a group of individuals with particular handicaps;
3. list functional, routine chores, academic, leisure, communication, and social-personal tasks required in contemporary and likely future home, community, school, and vocational environments;
4. list tasks that are chronologically age-appropriate permitting individuals to live as independently in as least restrictive and as normative a manner possible;
5. list compensatory skills required of individuals with specific types of handicaps; and
6. teach skills in the same form in which they must eventually be performed in the natural environment using the same equipment and materials commonly used (reduces problems associated with skill generalization).

Procedure

1. The target population for which the curriculum is being designed is defined in terms of age, type of handicap, level of functioning, and geographic location—urban or rural, slum or wealthy area. For example, the target group of students may be defined as educable mentally retarded, 6-12 years of age, of mixed caste Hindus, living in a rural farming or fishing village.
2. A broad variety of different types of families are selected to represent the target population. Each family has at least one handicapped person (child or adolescent) from the target group and at least one nonhandicapped sibling of the same sex and similar chronological age.
3. The boundaries of the home, community, school, and vocational environments in which the *non*handicapped individual is currently

performing are identified. The extent to which an individual participates in each environment usually increases with age. In a village, the home environment includes the indoor domestic, living, and recreational areas and may include the immediately surrounding outdoor areas where the family animals, garden, well, washing, and toileting are located.

4. In each environment, subenvironments are identified in which the nonhandicapped person is currently performing. For example, in a village, the community environment may include include such subenvironments as the fields where crops are grown, the village well, the market, the temple, a public meeting area, the river bank, and various connecting roads and pathways.

5. The boundaries of future environments and subenvironments are predicted.

   a. Inventories, conducted on persons from 1-5 years older than the target person, are reviewed to determine likely future environments, subenvironments, and task demands. Usually, when predicting future environments, it is sufficient to predict where individuals will be in one year except where major environmental changes are predicted such as movement from rural to urban areas; where a large number of skills are required and/or where the skills required may take a long time to learn. In these cases, depending on the learning ability of the children or adolescents in the target group, it may be desirable to predict where the students will be in 3-5 years.

   b. Local trends are evaluated, for example, migration to cities, and increasing or changing industrialization or mechanization. Relevant information may be obtained by interviewing members of the village council, as well as representatives of education, health, industry, and social service agencies.

6. Functional tasks are identified that the nonhandicapped individual performs in each subenvironment. For example, at the village well, tasks may include bathing (self or others), washing clothes, washing cooking equipment, and getting drinking and cooking water.

Functional tasks performed by nonhandicapped children may be identified in the following ways.

   a. Each environment and its subenvironments are separately reviewed in the following order: home, community, vocational (if relevant), and school. The home inventory provides information about current and future community, school, and vocational environments. Leaving the school inventory to last provides the

opportunity to evaluate the ability of the school program to train functional skills required in the other environments.

b. Within each subenvironment, the following tasks are identified: common daily task demands fulfilled by the nonhandicapped person, tasks performed at commonly occurring special events, and tasks performed during various seasons. Routine chores, as well as recreation, communication, and social-personal activities are identified. Also identified are low frequency tasks of high importance, such as putting up storm shutters before a hurricane.

This information may be gathered in the following manner:

a. Parents, teacher, employers, and/or other knowledgeable informants may be given a specially designed diary format on which to record the sequence of common, daily, task demands (routine chores, recreation, communication, and social-personal activities) over a two-week period. Questions in the diary may also prompt recording of low frequency tasks of high importance and recording of tasks performed during special events or various seasons. Even if the diary is not completed in a satisfactory manner, discussion of the type of information required and the purpose of the study may prompt informants to attend to daily activities and increase readiness for the interviews that follow.

b. Following completion of the diary, an interview is conducted to clarify any information provided and/or to fi'l in any missing information. In addition, the interviewer may ask who performs (helps with) specific commonly performed tasks? Are special tools, materials, and/or equipment used? The information obtained from these questions and from the observations may be used to make the training environment as similar as possible to the natural environment with respect to tools, materials, and equipment. Similarities between the two environments may facilitate generalization of learning from the training environment to the natural environment.

c. Alternatively, instead of using a diary, interviews of parents, teachers, employers, and the invidividual under study may proceed directly to gain the same information as sought in (a) and (b) above.

d. Comprehensive observations may be made of common daily task demands in each subenvironment, or selective observations (probes) may be made of particular situations for which little information was available from the diaries and interviews. Also,

observations, may be made of performance of specific tasks to identify the steps involved and the tools, materials, and equipment used.

e. In the home, school, and vocational environments, information can be gained, respectively, from interviews of parents, teachers, and employers, and from observation of the activities being performed. In the community environment, however, information may be gained most effectively from observations made in selected community subenvironments of a random selection of individuals of the same sex and similar age as the individuals under study.

   During the preliminary interviews, the community subenvironments in which the individual performs are identified, as are the times and types of activities. Observations are then made in these subenvironments of the performance of these activities by a variety of individuals of the same sex and similar age as the individual under study.

f. As with the other environments, the school environment is inventoried to determine the tasks associated with routine chores, recreation, communication, and social-personal activities, as well as the task demands of the regular curriculm, the curriculum designed for students with handicaps, and the validity of these curricula to teach the functional skills required in the home, school, community, and vocational environments.

g. While each environment and subenvironment is being inventoried, an attempt is made to identity the frequency with which each task is performed and the number of subenvironments in which the task is performed. This information is used to determine the relative importance of the activity.

7. From all the tasks identified during the inventory of nonhandicapped children, tasks are selected that individuals with handicaps in the target population may be expected to learn during the next 1-5 years as a result of direct instruction and/or prostheses. The relative importance of each of these tasks to the handicapped person is evaluated using the following Task Importance Rating Scale.

To use the Task Importance Rating Scale, it is often useful to form a small committee of people familiar with teaching and with the type of persons in the target group for which the curriculum is being designed. Initially, each committee member should independently rate the relative importance of each task to members of the target population. Each committee member, with experience, can quickly mentally review each item

Task Importance Rating Scale

The importance of each task may be judged by its likely contribution to:		none	low	med	high
a	learning functional skills	–	–	–	–
b.	increasing social acceptability	–	–	–	–
c	learning chronological age-appropriate skills	–	–	–	–
d	increasing the opportunity to learn additional skills	–	–	–	–
e	learning survival skills	–	–	–	–
f.	improving performance in a variety of environments	–	–	–	–
g	increasing opportunities to interact with nonhandicapped people	–	–	–	–
h	increasing ability to fulfill frequent opportunities to perform	–	–	–	–
i	increasing ability to perform in less restrictive environments	–	–	–	–
j	improving health	–	–	–	–
k.	improving safety	–	–	–	–
l	increasing opportunities to understand/ express thoughts and feelings	–	–	–	–
m	increasing opportunities to enjoy social-emotional-recreational life	–	–	–	–

in the scale and give an overall rating of low, medium, and high importance in relation to other tasks the student may be required to learn. When large differences in the rating given to a particular activity occur, members of the committee may review and discuss each of the rating items in detail. These discussions can provide an excellent opportunity to review, revise, and develop values.

8. Tasks that are rated as relatively unimportant are eliminated. The remaining tasks are organized into a catalogue according to the environments, subenvironments, and activities in which they are performed. The relative importance of each task is indicated. For example, in the home environment, kitchen subenvironment, food and water storage activities may involve the following tasks: spraying for insects (H); cleaning food and water containers (H); and storing food in clean, dry, cool, and insect protected locations (H). Each of these tasks has been rated as high (H) in importance.

9. The tasks listed within the catalogue may be task analyzed to determine the individual subskills students must learn to be able to per-

form the task. The tasks may be task analyzed while they are in the catalogue or after they have been selected to be included in the curriculum for a particular individual or group of individuals. The skills should be task analyzed while in the catalogue if instructional personnel using the catalogue at a later time do not have the time and/or expertise to analyze the skills. Alternatively, if the task analysis is conducted following selection of the tasks for use in a curriculm designed for a particular type of learner, the tasks may be divided into larger or smaller units to better suit the abilities of the learner(s).

10. Parallel to the inventory of tasks performed by the nonhandicapped individuals, an inventory is conducted of the children or adolescents with handicaps. Any functional tasks performed by the handicapped individuals that are not required of nonhandicapped persons (e.g., cleaning and adjusting a hearing aid) are identifed. Also identified are any compensatory skills individuals with specific types of handicaps are required to learn (e.g., communicating with sign language). Tasks that are currently performed by the individuals with handicaps and that require further instruction are also identified. These tasks are analyzed and listed in the curriculum as in steps 7, 8, and 9, above.

11. The curriculum is then reviewed to ensure a suitable proportion of tasks has been selected from each of the following categories: home. school, community, and vocational environments; tasks required in current and future environments; and routine chores, communication, recreation, and social-personal activities. The appropriate proportion selected from each category depends on the level of functioning of the students involved, and the number and type of skills required. Some older inviduals may have acquired most of the basic home and community skills and the major emphasis in the curriculum may be vocational. Other students who are unable to acquire vocational skill may benefit from a greater emphasis on home and recreational skills. For other students, a focus on nonacademic skills may be most appropriate.

Note

1. Following the Alternative Futures Conference at which this paper was originally presented, the paper was submitted to the *Indian Psychologist*.

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