

The Teaching of Housing And Home Furnishings In Home Economics

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Professional home economists, according to a former Constitution of the American Home Economics Association, are concerned with "the attainment of the well-being of individuals and families, the improvement of homes, and the preservation of values significant in home life." One area of concern in home economics relevant to such a purpose is that of the physical environment of the home: family housing and the furnishings of the home. That the physical environment of the home is significant for the well-being of individuals and families is commonly recognized. However, what elements in the environment are significant and why they are significant are not readily agreed upon. What constitutes "improvement of homes" in the physical sense similarly lacks agreed-upon definition. With lack of clarity about what elements of the environment are significant and why, and about what constitutes physical "home improvement," the values to be preserved

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as significant in regard to the physical environment of the home remain unclear. It is the purpose of this paper to elaborate upon these conditions as they are reflected in the teaching of housing and home furnishings and to suggest new emphases needed.

Three kinds of emphases in teaching will be identified: (1) absolute rules, (2) description, and (3) truisms and vague generalities. That these emphases are common in the practice of teaching housing and home furnishings can be documented. One has only to observe many high school and college classes in home economics dealing with housing and home furnishings, numerous textbooks in the area, and high school home economics curriculum guides. It is recognized that all teachers do not use all the practices illustrated and that some teachers may not use any of them.

Emphasis on Absolute Rules

A rule is a principle or regulation to be observed regarding procedures, practices, or decision-

making. Rules may be considered as absolute, or they may be considered as relative to certain conditions or situations. When rules are absolute, they are considered as invariant, infallible, and not to be questioned; they are arbitrary or detached from supporting reasons open to examination. When they are considered as relative, they are recognized in terms of their source, they are accepted in light of the reliability of that source and in the context of supporting reasons rationally defensible; they are open to examination and open to change in terms of new information and new insight.

In the teaching of housing and home furnishings, rules are often taught. A rule is taught as absolute if it is taught as something to be followed invariably and as not open to question. However, *a rule having its origin in rational thought and formulated as relative to producing certain results may be taught as absolute* by teaching it out of context regarding (a) its source and (b) the critical examination of reasons for its acceptance.

It is not at all uncommon to find in teaching, and in the text materials used in teaching, an emphasis on absolute rules to follow in housing and home furnishings. The following are examples.

The lot on which a house is built should slope downward toward the street.

Balance colors in a room by using a small area of intense color with a large area of grayed color.

Place large pieces of furniture parallel with the walls of the room.

Cool colors should be used in rooms with southern exposure and warm colors should be used in rooms with northern exposure.

Custom in the community should determine the style of architecture.

Statements such as the above, written or said arbitrarily without explanation or justification, are to be differentiated from statements of rules where the rule is deliberately examined (in terms of consequences) among alternatives. Let us compare the teaching of "The lot on which a house is built should slope downward toward the street," with the following statement.

One guide to the selection of the site for a house is to choose a lot which slopes downward toward the street. When the lot slopes downward toward the street, the cost of providing for drainage of water and melting snow away from the house is less for the owner than when the lot slopes in the opposite direction. We know from our own experience that drainage of surface water away from the house is usually necessary to prevent flooding of the house as well as deterioration of the house and its contents from an over-supply of moisture. However, many of us have seen instances where drainage of water away from the house can be accomplished by engineering as well as by natural slope of the land. The engineering required obviously adds to the cost but there may be other features about a lot which make it desirable even when the slope presents a drainage problem. These desirable factors may outweigh the cost of engineering drainage for some home owners.

We said that drainage of surface water away from the house is *usually* necessary for certain reasons. Drainage of surface water away from the house is important when the house is built on the ground and for houses with basements. However, in some climates, houses may be built on poles so that all of the house except for the foundation poles is several feet in the air. If such a house is built on a hillside, although surface water will come down the hill toward the house, there is no problem because the water will go under the house and on down the hill.

Whether the longer statement is made in written text material or by the teacher or some member of the class, it differs from the terse statement, "The lot on which a house is built should slope downward toward the street," in significant ways other than length. In the longer statement, the source of knowledge is identified in the life experiences of members of the class. Students are called upon to make use of their own observations and reason to examine a rule. The consequences of applying

and of not applying the rule are made explicit, thereby relating the rule to certain conditions and establishing a means-end relationship in the student's knowledge. It is this means-end relationship in knowledge which will enable the student to control certain factors in the physical environment to produce certain results he considers desirable. The statement also deliberately points out that the rule is not invariant, doing so in two ways. First, it is pointed out that drainage of surface water away from the house may be accomplished through engineering although this is likely to be more costly than building on a lot which has a natural slope providing such drainage. However, it is recognized (in the statement) that reduction of cost is not an absolute value; for some people, other values in the choice of a building site may be more important than the specific cost of engineering drainage. Second, the statement also points out that, with certain conditions of building, drainage of water away from the house is not a factor to be concerned about, thereby reflecting the relativity of the rule to other conditions: geographical, cultural, and topographical.

Emphasis on Description

Descriptive knowledge differs from *knowledge of relationships*. When an object, event, or condition is described, we tell what it is and what its characteristics are. For example, to know that a particular building material is a synthetic product and that it is durable under ordinary conditions, relatively easy to clean, more expensive than certain other products used for the same purpose but less expensive than others, is to have descriptive knowledge of the product. Similarly, to know a classification of styles of architecture in terms of lines, shapes, materials used, etc., is to have descriptive knowledge of styles of architecture. To describe a particular trend in home building is also illustrative of *descriptive knowledge*.

Knowledge of relationships is stated (1) in terms of one thing being present when another thing is also present, or (2) in terms of one thing as

being sufficient or necessary to produce another thing. The first kind of relationship can be illustrated by knowledge that over-active behavior and anxiety occur together or that concreteness in thinking and absolute values are found together in the same person. Such statements present a weak relationship in the sense that we do not mean to say that overactiveness produces or causes anxiety or that anxiety produces over-active behavior. Neither do we mean that concreteness in thinking causes absolute values or that absolute values produce concrete thinking. To know and state that one thing is sufficient or necessary to produce another presents a different type of relationship. This type of knowledge can be illustrated with the example: an excess of stimuli in the environment (one thing) results in (is sufficient to produce) anxiety (another thing). Having this knowledge, we can predict the effect of an environment which has an excess of stimuli; we can also prevent or create anxiety and fatigue by varying the degree of stimulation in the physical environment. Statements of knowledge of relationships may also appear as explicit comparisons of the results of two or more things (which are implied in the preceding example). To illustrate, intense colors in the environment (one thing) are more stimulating (produce more of a certain thing) than grayed colors (another variation of the first thing: intensity of color). Again, we can predict the effect of intense and grayed colors in terms of the degree of stimulation they arouse; we can control the degree of stimulation from colors in the environment by varying the intensity of those colors. In other words, *knowledge of relationships* provides us with a *means-end relationship* whereby we can predict the result of using certain means, and we can control the ends accomplished by using certain means.

One of the observations made in examining many texts on housing and home furnishings, the content of many classes, and curriculum guides is the *emphasis on descriptive knowledge*. Students spend considerable time on names and classifications of color harmonies, furniture styles, architectural styles, modes of constructing various

kinds of furnishings, types of rugs and carpets, etc., where definitions of terms and categories are learned. Descriptive knowledge is also presented in reporting the results of surveys. For example, the statement that most people in a certain part of the country prefer single family dwellings simply describes a particular group at a particular time.

Description is also frequently involved in preoccupation with past practices, customs, and styles in housing and home furnishings. Many texts and many teachers are found devoting considerable space in time, words, and activities related to historical description. This is exemplified by major attention paid to historic architectural styles and practices and to period styles of furniture whether in our own culture or some other.

Description is also involved when attention is devoted to (1) present styles in housing and home furnishings without evaluating those trends or identifying the problems which they produce and (2) products and materials presently available and used in the physical environment of the home. It reflects a value orientation to the present as "whatever exists now or is done now is good." Such an orientation does not focus on problems which must be solved for the welfare of the individual, the family, or society. Here are some illustrations:

Another new type of material used for modern backgrounds is patterned glass. It is sometimes used as walls for the shower bath or as a partial screen between the hall and living room.

Another invention of the twentieth century is the modern folding door. The door folds upon itself in an accordion-like way. It slides on a track installed across the top of the doorway.

The typical American family changes its housing location several times between marriage and retirement from work. The most frequent moves are usually made while the children are young.

Emphasis on Truisms and Vague Generalities

A *truism* is a statement which insists on the obvious. Because such statements present self-evident truth, anybody would recognize them as true. They are needlessly self-repetitive. The use of such statements in teaching is to parade the obvious as if it were scholarly knowledge, the result of disciplined and creative inquiry. Here are some examples:

Man requires shelter for his protection.

Labor-saving equipment reduces the amount of effort required of the homemaker in doing work.

Conditions influencing the choice of a fuel for the home are the comparative advantages and disadvantages of its use.

Vague generality is used here to identify generalizations which are so indefinite and imprecise that they lack usefulness. Although they state relationships, vague generalities lack usefulness because we can not interpret their meaning with sufficient clarity to apply the generalization to specific situations. We cannot predict the consequences of alternative means nor can we control ends by varying the means. Let us take the example, "The use of color in decorating the home has a psychological effect." In terms of the means, what use of color has a psychological effect? In terms of the end, what psychological effect? To put means and ends together, we are inclined to ask, so what? Are the psychological effects the same no matter how colors are used or do different uses of color produce different results? Such a vague generality provides us with inadequate knowledge for thought or action. We do not understand the meaning of the statement. We are not in a position to make useful predictions about the utilization of color; we are unable to control psychological effects we might be interested in controlling through the use of color. In useful generalizations, the concepts are more precisely identified and the specific nature of the relationship between them made clear.

Vague generalities appear without more

specific and enlightening statements which would help to differentiate and to integrate concepts. Here are some additional examples:

Housing supplies the environment for the physical and emotional development of individuals and of families.

The aesthetic qualities of housing influence the mental welfare of the housing occupants.

Effects of Teaching With Such Emphases

Each area of practice identified above will be treated separately here in pointing out the effects. We can apply the results of earlier research done (most of it basic research) to predict the effects. This is what is attempted below. The reader may look upon the paragraphs which follow as applications of existing empirical knowledge or as hypotheses relating each of the teaching practices (or independent variables) to the development and behavior of students (as dependent variables).

Results of Emphasis on Absolute Rules

When absolute rules are taught, not only does instruction hold up the rule as something to know and use, evaluation of students rewards them for learning and accepting absolutes and punishes them for questioning the absolute rule or its source. The effects when teaching of absolute rules occurs have been shown by Ausubel (1958); Crutchfield (1955); Getzels and Jackson (1961); Harvey et al. (1961); Lidz et al. (1958); Maccoby (1959).

Consistent training of an absolute nature causes those trained to become very conscious of status persons. Such persons are perceived as omniscient and powerful. The trainee or student develops a symbiotic dependence upon status persons (including the teacher) to the extent that the dictation of what to believe and to do by such persons is expected and required. Standards of thought and acceptable actions upheld by authority figures and by the culture are accepted and followed without question and with compliance.

The trainee is submissive to those he considers to be in positions of authority over him and dominant over those he considers inferior to him in status.

Students or trainees consistently receiving such training do not develop standards and processes of rational thought but rather standards and processes of irrationality. Growing out of the kind of interpersonal relationships described in the preceding paragraph, is the inhibition of curiosity and creativity. Concepts are fixed and rigid, and thinking is concrete rather than abstract. The person who functions conceptually with such concreteness and rigidity does not see subtleties or differentiate clearly among ideas; he oversimplifies without recognizing that he does so and holds to only one conceptual scheme rather than consider alternatives. His mind is closed to new pieces of information or attitudes especially those conflicting with his own rigid system. Concepts are compartmentalized rather than integrated (so may be contradictory) and means are pursued without regard for the ends involved; in short, he is anti-intellectual. He has a rigid conscience which makes him self-centered in outlook, overly moralistic, and quick to judge others. However, he does not understand people who are different from himself and judges them inaccurately since they do not fit his stereotype. He is prejudiced regarding ethnic and social groups unlike his own, judging members of such groups by external cues such as clothing, personal appearance, surface behaviors culturally approved, and material belongings. Such persons are unable to cope with shifts in problems to be solved and are resistant to changes in the environment.

In brief, it may be said that those who have been consistently trained under conditions of absolute rule-learning show anxious, simplistic behavior which characterizes mentally unhealthy and intellectually incompetent persons. The potential for mental soundness and intellectual competency is not only wasted; it is forced into distortion.

Effect of Emphasis on Description

First, it must be said that description is neces-

sary both in research and in teaching. In research description is required for defining concepts. The term used to designate an object, event, or property is often defined by stating its characteristics. Such description often helps us to see relationships in qualities that we would not otherwise see. In teaching, description serves a similar purpose: to clarify conditions, objects, etc. Further, in teaching which aims to help students solve problems and, therefore, to seek and find satisfactory means to reach certain ends, description serves to help identify means which are available. For example, in seeking to find ways to reduce noise in the home, descriptions of various building practices (e.g., staggering studs on walls) and of various building materials are helpful in selecting or planning means to use.

We are concerned here about *emphasis on description to the neglect of generalizations and theories which are scientific explanations*. Such emphasis frequently occurs in a random approach to teaching in the area of family housing and environment where terminology, definitions, classifications, and descriptions of prior or existing practices become ends in themselves. In such teaching integration of concepts is not encouraged and, for the student, learning becomes a collection of isolated bits and pieces. Attempting to learn under this condition discourages conceptual development. The significance of organization and integration of concepts for learning has been shown in investigations over the past three or four decades. What is learned takes on meaning when that which is to be learned has organization and structure; that which is learned is understood more readily and retained longer when organized conceptually than when isolated concepts and facts (Carpenter, 1956).

Emphasis on description and isolation of concepts and facts in teaching fosters conceptual rigidity and simplicity (Schroder and Rotter, 1952). In being required to learn isolated bits of descriptive knowledge, the student's reasoning powers are not engaged in seeing causation or other relationships. Therefore, he defines

achievement in school in terms of that for which he is rewarded: conforming or measuring up to the external criteria held by the teacher or one in authority (Rokeach, 1960).

When teaching is devoted to describing of preferences, customs, and existing practices concerning the physical environment of the home, this type of description differs from that which centers on definitions of terms and on classifications. Both types of description deal with somewhat fragmented or isolated pieces of knowledge. However, terminology and classifications can deal with basic concepts upon which the structure of organized knowledge is built. For example, we must understand the meaning of *sensory deprivation* before we can understand the meaning of a generalization which links *sensory deprivation* and *mental retardation* in a cause-effect relationship. In teaching various customs, existing preferences, etc., there is a limit to the significance of such descriptive knowledge in a field such as home economics. On the other hand, when we understand the symbolic meaning which people attach to a life-time custom or a tradition shared in childhood, we understand why planners and builders of apartments for the elderly err in having minimal size kitchens with no place in them to eat. We understand also why some people consider it important to have fireplaces in their homes in spite of the inefficiency and expense. However, one does not have to know all of the preferences (which change with time, conditions, and people) or all of the customs (which differ not only from one culture to another but from one family to another) in order to grasp the significant concepts and their relationship. Common to the examples above is the same explanation:

A person attaches symbolic meaning to certain life-long customs and traditions of one's childhood family. This symbolic meaning is unique to the individual and is a value which may be greater than some other values. Denial of one's values in living creates anxiety and frustration; ability to realize one's values brings satisfaction.

The study of description of various customs and practices *without the purpose of understanding their significance* may satisfy a somewhat idle curiosity but is not fruitful either for understanding the relation between man and his environment or for controlling the environment. Furthermore, customs change as do practices regarding housing; knowledge of existing customs and practices per se becomes outdated often before it is even made available to students.

Understanding such as that described above has value not only in terms of adding to knowledge and satisfying human curiosity; explanation has other functions which grow out of understanding. One of these functions is particularly related to our concern here. That is, explanation makes some degree of prediction possible so that we can have some control over the environment. We can often control conditions in order to achieve desired ends. If we cannot control conditions, we can through prediction at least better orient ourselves to conditions and prepare to deal with them in ways which will most nearly help us accomplish a desired end.

While teaching requires some attention to description as a step toward more sophisticated learning, *emphasis* on description as the end of learning has negative consequences with students. Further, such emphasis decreases opportunity for the positive values of building more complex conceptual structures through scientific explanation and of evaluating those structures.

Results of Emphasis on Truisms and Vague Generalities

Teaching which emphasizes vague generalities leads to holding concepts which are undifferentiated and unclarified. In order to make this point clear, it is necessary to examine to some degree how concepts develop.

A word or term is used to designate or refer to some particular class of objects (the referent). For example, "post and beam construction" is a term used to designate a particular method of house construction (the referent) which could be pointed to on an appropriate construction site. (Not all terms and concepts have instances to point to

because they are ideational.) It is the individual's *experience with the referent* which enables him to develop a concept (or concepts) related to that referent. For example, visually examining an example of post and beam construction together with the perceptual and organizational activities accompanying the visual examination enable the individual to gain a conceptualization of such a method of construction. If he can compare specific features of post and beam construction with specific features of alternate methods of constructing the same thing, he comes to perceive differences between post and beam construction and conventional frame construction. Perception of reality or simulated reality thus leads to the development of concepts through differentiating and unifying those elements which, in their total organization, comprise a concept (Vinacke, 1951).

Differentiation involves breaking down a concept for the features or elements which set it apart from other concepts. Let us illustrate with the concept *creative thinking*. Suppose we wish to reward evidences of creative thinking among students. Just what would we reward if we wish to discriminate between creative thinking and non-creative thinking? Creative thinking involves the creation or production of something. Thus far the concept is undifferentiated because it is not broken down into parts which differentiate creative thinking from other activities in producing things. Merely producing a product or simply making things does not necessarily mean that the producer or maker shows creativity; *originality* must be involved. But does all original work involve creative thinking? Is an essay original with the author necessarily creative writing? Is a proposed solution to a problem original with the one who proposes it necessarily a creative solution? Unless the original work shows the *organization of ideas into new patterns*, expression in writing or in some other medium and proposed solutions do not reflect creative thinking. Now, we ask, does every original organization of ideas into new patterns constitute creative thinking? Creative thinking does not operate in a vacuum but is re-

levant to some function. Creative writing functions to communicate certain ideas; creative planning functions to meet certain ends; creative problem solving functions to solve particular problems. Unless the original organization of ideas into new patterns *serves the function intended*, the new patterns are faulty; i.e., the production does not accomplish creation. A design for a bridge which will not enable the bridge to withstand the traffic for which it was planned is hardly a creative bridge design. The concept of *creative thinking* could be analyzed further but perhaps this is enough to illustrate the process of differentiation in setting *creative thinking* apart from other concepts. Three elements were identified in the example: originality, organization of ideas into new patterns, and service to the function intended. The more differentiated a concept becomes for the individual, the greater its clarity; the more gross the differentiation of the concept, the greater the individual's vagueness or lack of clarity (Piaget, 1954; Vygotsky, 1962).

Clarity of a concept goes further, however, when the concept is not only differentiated but when the elements (arrived at through differentiation) are joined together to form an integrated concept. The concept of creative thinking, for example, is clearer when we organize into a whole all three (or more) of the elements identified rather than thinking of them separately. It is the integration of all of the elements which makes for consistent evaluation of environmental stimuli and ability to cope successfully with the world. Employing the elements separately is likely to lead to inaccuracy or distortion in situations where the concept is used. Progression in the clarity of a concept, then, proceeds through the process of differentiation and integration which occur more or less simultaneously in one aspect of the concept and from one aspect to another.

Interrelating concepts when the concepts have not been clearly differentiated is made possible through language. Words are acquired and inter-related without adequate concrete experience with the referents. How the concepts involved are related to reality is not explored. The result is

empty verbal generalization, i.e., without conceptual clarity. The individual is unable to recognize new concrete situations where the concepts apply.

Nothing has been said about the effect of teaching which emphasizes truisms as such. Since truisms are needlessly repetitive and, therefore, so obviously true that they do not need discussion, they add nothing to our knowledge. The important point about many truisms is that they pretend to present knowledge about the world but fail to do so because they are needlessly self-repetitive. As a result, truisms posing as generalizations negatively influence coherence of knowledge. Lack of coherence interferes with differentiation and clarification of concepts. Consequently, the long-term effects of concrete thinking, lack of adaptability and creativity, and simplistic thinking (which are the product of inter-relating concepts not clearly differentiated) result from emphasis on truisms as well as from emphasis on vague generalities.

Creativity and the Physical Environment: Emphases Needed in Teaching

The whole area of the physical environment of the home as a concern of home economics needs to be re-examined in terms of the problems on which to focus, the source of knowledge with which to solve these problems, and the conceptual framework of relevant knowledge. Because creativity in coping with life situations is a product of the qualities of training as well as the result of adequate knowledge, the kind of training environment involved in teaching students also needs re-examination.

Problems on Which to Focus

The frequent tendency to treat the physical environment as an end in itself must be changed to perceiving the environment as *means toward human goals* if rational processes are to be used in formulating and solving problems. Studer and Stea (1966) make this point quite clear.

Environmental problems have been erroneously formulated, in most instances, due to the tacit assumption that what is required is a particular class of (or collection of) physical entities, e.g., a "building," a "school," a "house," a "civic center," a "city," an "Indian village," (a variety of) "rooms." While any environmental problem typically requires some sort of physical system as a solution, problem definitions such as these are manifestations of linguistic (and conceptual) reification, not rational processes of formulating problems; the imposed bias places both cognitive and logical constraints on environmental decision-making which are rarely overcome. The problem is not one of simply "redefining terms" but of evolving an *entirely new taxonomy* of problem formulation.

The "functioning origins" of environmental problems are to be found not in the domain of physical entities but in the *behavioral topographies* of the human participants. To develop a *modus operandi* for formulating environmental problems we must have a (conceptual) understanding of how the designed environment affects the human organism (pp. 130-131).

Teaching which treats elements of the physical environment apart from their effects on cognitive development, emotional health, mental and physical productivity, physical health, and other human conditions is fixed on the means. In such teaching no attempt is made to validate elements of the physical environment in a means-end relationship.

A new taxonomy of problem formulation regarding housing and home furnishings requires focus upon human problems which the home physical environment creates or which it can help alleviate. This calls for a conceptual understanding of the psychological and social functioning of individuals and groups. Lowenthal (1967) has pointed out that environmental planning and improvement are nothing more than academic exercises unless there is first an understanding of perception, of how people think, and of the goals

which people select.

Something also must be said about the universalism of perennial problems versus the provincialism of immediate problems. Even human problems can be identified with an intellectual naivete which fails to place them in perspective; the result is to over-simplify human needs and goals. Examples are readily available in decisions regarding community housing projects. Poor families of the community are often housed in a complex of buildings which provide them with "a nice, new, clean place to live" and which provide the city fathers with self-pride for their generosity. Yet the poor housed in such projects are made constantly aware that they are wards of the community living among other community wards; their own need for a sense of dignity is ignored. Yet the human need for feeling dignity as a person is more universal and more basic than the provision of a nice, new, clean place to live. For this reason policies in some communities to provide housing for the poor which does not physically and obviously isolate poor families from other families have had favorable results in fostering a sense of personal and family worth.

Source of Knowledge²

As has already been pointed out, much of what is taught about housing and home furnishings in home economics has its origin in custom, in upper middle class taste orientations, in traditional aesthetics, in popular acceptance, and in mere speculation. A shift to a new taxonomy of problems referred to above also requires a shift in the source of knowledge with which to deal with those problems. More reliable knowledge is required. The architect, Richard Neutra (1954), called for the use of scientific research to provide foundations for selecting and employing means to improve the environment. His concern for a commanding view of the environment and human potential and his criticism of a "too commercialized technology" point to the type of research now known as critical science. Such a science is a

hybrid one which uses philosophy to criticize the hidden values affecting human freedom; it also uses science to understand persons and to find means to promote that freedom (Habermas, 1973; Shroyer, 1970). Understanding persons requires knowledge through the cultural or interpretive sciences (Filmer, 1972; Gadamer, 1970) for there are variations in personal and cultural meaning attached to specific practices or tastes in the physical environment. Standardization of tastes and preferences robs us of rich differences in cultural meanings. A third type of research and one with which we are more familiar, the typical empirical science, can show the human effects of specific elements in the physical environment, e.g., the individual and social effects of noise, of privacy, or of natural environmental beauty. Such a science can help in finding means instrumental to human development clarified and understood through the other two scientific perspectives. Bernstein (1976) and Radnitzky (1973) present a comparison and critique of these three metascientific perspectives. The following of custom, tradition, social class tastes, and speculation as sources of knowledge may well create human problems rather than help to solve them.

Conceptual Framework

With environmental problems defined in terms of human needs and aspirations rather than as given physical entities, the conceptual framework of knowledge is developed with conditions of the human organism as ends or effects sought and elements of the physical environment as related means or causes. The significance of viewing knowledge in terms of means-end relationship cannot be over-emphasized when the concern is for rational decision-making regarding the environment.

Concepts regarding ends. For clarity in understanding, the end stated as "well-being of individuals and families" must be more clearly differentiated. Further, this differentiation must come through scientific description once initial

nominal definition is agreed upon.

The most familiar concepts of well-being are in the area of physical health. Freedom from disease, normal organic functioning, physical stamina, and, in the young, normal growth are defined in terms of observable characteristics in medical research reports and textbooks. The concepts are refined and revised with new knowledge but these concepts of health are sufficiently defined to differentiate healthy cases from unhealthy cases and even to differentiate among kinds and degrees of ill health.

The concepts of psychological and social well-being are less clearly defined and less commonly accepted, but here, too, progress has been made. There are those who hold positions of cultural and sociological relativism who argue that cultures and societies differ, that pathology of the individual can be defined only in terms of failure to adjust to the ways of his own society. There has been an upsurge of concern for agreement on the norms for mental soundness and health. The concern arises from the increasing menace of mental ill-health throughout the world and from the desire to discover common values on which to build a world society. Criteria for individual mental well-being have been identified through interplay between moral philosophy and clinical studies. A number of investigators including Erikson (1950), Johoda (1950), Maslow (1954), and Barron (1954) have suggested qualities or characteristics of psychologically sound persons. Among the individual characteristics identified have been sense of personal identity, integrity and acceptance of the self, accurate perception of reality, spontaneity and zest for life, ability to work persistently and effectively with objective tasks, creativeness, detachment from other persons (non-clinging and unpossessive relationships) together with compassion and the forming of a few deep, selective social relationships.

Social soundness or the healthy society or group has also been studied (Arendt, 1958; Cohen, 1961; Sanford, 1966). Fromm (1955), for example, defines it as that which corresponds

with the objectively identified needs of man. More specifically, such a social group promotes the individual's capacities for (1) productive love involving attitudes of care, responsibility, respect, and knowledge, (2) creative thinking and living, (3) humanistic equality and freedom, (4) individuality, and (5) rational and objective orientation to reality. Conversely, the society which rewards domination or submission, self-love, dependency, herd conformity, and irrationality is unhealthy.

Concepts regarding means. Elements of the physical environment which influence human behavior must be identified. Some attention has been given to such concepts as sensory stimuli and to variables of space, color, shape, etc. These are perhaps rather obvious elements of the physical environment. What must be emphasized here is that *an individual's response to his physical environment is a very complex matter which cannot be reduced to linking particular physical stimuli directly to particular human responses.* Each individual brings his existing conceptual development to bear upon the elements of the physical environment; his attitudes and values and the symbolic meaning he attaches to objects of the environment influence his perception and his response. For example, the child who has been brought up in a noisy environment has learned to turn out noise and, subsequently, reacts differently to noise than the child who has grown up in a quiet environment. Similarly, because of differences in backgrounds of experience and conceptual development, particular colors may be perceived very differently in terms of their psychological meaning by different persons. An object which has psychological or sentimental value because of its origin or events associated with it is perceived differently by the person for whom it has such value than by the person for whom it has no value attachment; the object will, therefore, evoke different reactions. Because attitudes and symbolic meaning mediate between the actual physical stimuli and the individual's reaction to those stimuli, concepts of means for

controlling the physical environment must also include these attitudes and symbolic attachments. The teacher who ignores this area of concepts can only assume that every one she teaches attaches (or should attach) the same attitudes and symbolic meaning to each element of the environment that she attaches. The framework of means-ends relationships is badly oversimplified when physical stimuli are posed as producing universally the same reactions in all persons; that is, when environmental stimuli are viewed as means apart from the intervening variables of perceptual and conceptual equipment of the persons involved. An increasing body of knowledge from research is accumulating to throw light on these intervening variables. For example, Witkin (1954) found some people to be field-dependent in that they found it psychologically necessary to see in the environment only what they expected to see so that incongruous or unexpected stimuli were not recognized. Klein (1950) found *levelers*, those who leveled features of the environment to make what they saw acceptable to themselves by vague and unclear, and *sharpeners*, those who tended to perceive fine and unusual elements of the environment. Rokeach (1960) found that closed-minded or dogmatic persons ignore or do not perceive stimuli which may be psychologically threatening, whereas open-minded or non-dogmatic persons do not have the need to ward off such threats and are more cognizant of available stimuli. Persons who are authoritarian are biased in favor of the simple, familiar, and commonplace in environmental stimuli while nonauthoritarian persons are sensitive to and accepting of complex, novel, and deviant forms in stimuli (Bieri, 1961; Rosenberg and Zimet, 1957). These and other differences in perceptions of stimuli, according to Johnson (1955), are the result of differences in perceptual set, perceptual references, and perceptual ability.

Kind of Training Environment Provided

Some reference has already been made to

teaching methods involving inquiry and discovery. Such approaches to teaching-learning are significant in producing more creative and more flexible ways of meeting problems. The training environment, however, consists of more than teaching methods as such. Although mastery of particular methods or processes of teaching is important, these methods or processes are perceived by the student as only part of what directs his learning. The social interaction between teacher and students and among students, the social-emotional atmosphere of the total school, and the student's previous experiences are all factors which influence his rigidity-flexibility or conformity-creativity in coping with his environment. While nothing can be done by the teacher to change the student's previous experiences, the realization that the latter's stage of development is a product of his previous training should help the teacher both to accept him as he is and to provide training appropriate for his level of development.

Some experimental work has been done in providing educational environments matched to the student's level of adaptability in an effort to open the conceptual system and enable it to progress to higher levels of functioning (Hunt, 1966). Teaching in which the student is valued for himself rather than for what he can accomplish in relation to the requirements of others is basic to a learning environment which induces progression toward creativity. The student who is rewarded for autonomous search behavior and the discovery of alternative solutions rather than for giving right answers to questions becomes more willing to take the psychological risks involved in exploration and in possible failure (Harvey et al., 1961; Suchman, 1961). Concepts are clarified through the student's exploration of objects of the environment. Generalizations are generated by the student through the teacher's manipulation of the environment for the student's exploration. For example, instead of the teacher giving the generalization that bright colors impinge upon visual perception more readily than dull colors,

the teacher could set up a randomly mixed collection of eight or ten bright and dull colored swatches (the same number of each and the same size). The collection should be kept covered from view until directions for the activity have been given. Directions ask the student to write down three colors he sees when the swatches are unveiled for a very short time (one or two seconds). In comparing what colors various students saw, the likelihood is that they will record the names of bright colors. Through verbal analysis of the difference between the colors they saw readily and those they did not, *students abstract and generate the generalization but accomplish this through the teacher's manipulation of the environment.* Similarly, the generalization that overstimulation in the environment produces psychological fatigue could be generated by setting up two sets of conditions (lasting the same amount of time) for students to experience: (a) one of a moderately stimulating environment (sounds, visual stimuli, tactile stimuli, etc.), and (2) another with an overabundance of sounds, visual stimuli, tactile stimuli, etc. Again, analysis of the differences in the two conditions and the consequences in terms of their feelings after each set of conditions can lead to abstracting the concepts and generating the generalization relating overstimulation and fatigue.

Throughout the analysis and derivation of generalizations from their experience, students are rewarded for searching and are not punished or ridiculed for wrong answers. Evaluation is not personal and in the sense of "You are right" or "You did that well." Rather evaluation is informational in the sense of "When objects are brightly colored, *it is true* that we see them more readily than when their color is dull" or "When similar concrete cases are examined to discover a general idea which covers all of the cases, *it is necessary* (as you did) to find some principle or idea which is present in all of the cases." Evaluation is informational also in the sense that *what is evaluated is made explicit* as in the latter two examples; in the first two examples, evaluation is

personal approval because objective criteria for evaluation are not made known.

In manipulating the environment, the teacher avoids making the students dependent on her as she would if she pointed out features to observe or if she stated the generalization to be derived. Before expecting the more complex process of deriving a generalization relating two or more concepts, adequate provision is made for differentiating and abstracting the concepts involved in the generalization and new to the student. Although the manipulation of the environmental elements is well structured by the teacher, there is flexibility in students' exploration of the environmental situations(s) provided. Students are helped to be aware of the process by which they arrive at information and of the tentative nature (rather than absolute and final) of all knowledge. They are guided to recognize the standards by which a generalization is accepted (for example, when something is true all of the time or when something is true most of the time).

Such a training environment as that described above is very different from one which emphasizes empty verbal learning of given statements (oral or written), absolute rules, the unquestioning acceptance of cultural standards, and the blind acceptance of meaningless generalities.

Notes

1. This article is excerpted from *Evaluation Materials: Physical Home Environment and Psychological Factors*, written by Marjorie Brown and Jane Plihal and published by Burgess Publishing Company, Minneapolis, Minnesota (copyright 1969). Permission to reprint excerpts from pages 1-31 written by Brown has been given by the publisher for use in *Housing and Society*. Only minor changes in wording have been made at points and one section has a few sentences added.
2. This section has been partially rewritten in order to point up three different metascientific approaches to research as sources of knowledge for the conceptual framework previously described.

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