

Teaching the Why and When as Well as the How and What

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As home economics teachers, we have all had experiences with students who, in effect, say, "You can have your way now; I'll have mine when I get around the corner". I'll measure these ingredients now because I know you're watching, but I won't bother with it when I'm cooking at home. I'll press these seams open in class because you tell me to do it, but I won't have to when I'm on my own. "I know you think I shouldn't bribe my little brother, but. . . .The individual who uses techniques without an understanding of the "why" of those techniques can only try one technique after another in an attempt, to deal with a given situation. Teaching "how to do" produces an uneducated person, because by the time he has completed his education new techniques and developments have replaced the old with better "how to do." Research findings on how people learn show that being told is not effective. Research does show that when people come to "see" an idea for themselves they can and do apply such learning to coping with problems in their own lives. This insight, called "common sense" by the layperson, is being spoken of as "generalizing" in teacher education literature. The learner should not be engulfed by specifics; it is teaching so that students arrive at generalizations that produces the truly educated.

You may feel as the farmer did, who, when invited to a meeting to learn how to improve his farming practices, allowed as how there was no need to go because he wasn't farming half as well as he already knew how. So why worry about generalizations? Many teachers rather intuitively help students to make generalizations about their practical classroom experiences. But because we want for our students only the best, we need to clarify for ourselves what generalizations we are trying to teach so that we may use our creativeness and intelligence to set up the kind of learning situation in which students learn to draw valid generalizations.

First, let's clarify some of the terms found in current articles about this topic.

CONCEPTS

Concepts are abstractions which are used to organize the world of objects and events into a smaller number of categories. . A concept is the "big idea". It may be expressed with one word, a phrase or a sentence.

Concepts are the result of many experiences. For example, a small child may be told that a particular four-legged animal is a kitty. Subsequently, he calls every small four-legged animal he sees "Kitty." But as he grows older, he discovers other general likenesses about cats so he is able to categorize them more exactly. The child's first concept of milk may be only that it is a white fluid to drink. Later, the concept of milk is extended to include something held by a glass, something given by a cow, something used by the body.

Each individual has his own set of concepts, some may be accurate and some inaccurate. Others may be as individualistic as one of a five-year old who, in response to his mother's explanation that he came from a seed in a package in her body, inquired, "Did the package have a picture of me so you'd know what you were getting?"

A concept is the complete meaning that goes with all one knows, thinks and feels about something and determines to a marked extent what one is and what one is able to do. Concepts are useful because they lift one above specifics into a level of generalizations, providing a framework and guideposts for thinking so that one can interpret and deal with things unknown. Concepts give a relatively stable, permanent system of knowledge.

GENERALIZATIONS

A generalization is a complete thought which expresses an underlying truth. has an element of universality/ and usually indicates relationships. In each area of knowledge there are so many facts to learn that it is difficult ,to remember the separate facts. The human mind tends to organize them into more general categories so that there are fewer things to remember.. In so doing, individuals look for likenesses and relationships. Thoughts which show relationships among ideas that belong together, which have

broad application, and which are based on sound logic and/or research are then generalizations. Generalizations are designed to encourage thinking and are used in problem solving.

An illustration of a generalization related to the concept of management might be stated as follows: The decision-making process involves seeking alternatives, thinking through the consequences of each alternative, and selecting the one most likely aid in reaching one's goal.

PRINCIPLES

A principle is a generalization, but not all generalizations are principles. Principles are laws. Principles (or laws) of conduction and convection are related to the size and shape of cooking utensils and materials from which they are made. Air pressure principles are related to use of pressure saucepans and pressure canners in food preparation and preservation.

FACTS

Is the statement "The world is flat" true or false? Is it true or false that the world is an approximate sphere? Is the latter knowledge that was always known, or -is it knowledge that was developed through observation and experience?

The English word "empirical" comes from the Greek prefix "em-" meaning in, and the Greek stem "peira" meaning trial. Thus the English word "empirical" has something to do with observation and experience. A fact is related to empirical truth. So a fact may be defined as a statement of truth based on empirical knowledge.

What does the phrase "based upon empirical knowledge" imply about facts? It implies that facts do not always remain stable, but that the discovery may change as a result of scientific progress. When vitamins were to be important factors in well-being, their use was prescribed rather promiscuously. As a result of further research we now know that excesses may be more harmful than deficiencies. Facts, then, are impermanent. Generalizations, being less special give a relatively stable system of knowledge.

GENERALITIES

Generalizations are not generalities. Generalities interfere with genuine education and are often used to short circuit thinking. Generalizing from limited experience, from being blinded to some facts by prejudice, or by accepting half-truths as facts result in generalities.

LEVELS OF DIFFICULTY IN GENERALIZATIONS

There are three levels of difficulty in generalizations in the cognitive domain. These are also thought of as levels of thinking.

A. The first level is likely to be either a description, definition, analogy, identification or classification. Statements are simple and may relate to personal experiences. Examples: Children develop at different rates. In our society, families tend to pass through various stages or cycles.

B. The second level shows relationships among ideas. They may make comparisons, and include more ideas than on the first level. Examples: A child's physical needs are affected by his particular level of development. Each stage of the family life cycle requires different types of adjustments.

C. The third level usually explains, justifies, interprets or predicts. Generalizations at this level may be more remote in time or space. They often suggest a direction for behavior. Examples: If one knows the developmental level of a child, one is more likely to understand and be able to meet the physical needs of that child. Anticipating changes in one's family cycle can help an individual adjust to the changed situation.

SEQUENCE OF GENERALIZATIONS

The three levels of generalizations might be developed during the year or they might be one basis for sequence from year to year. The maturity of the students determines whether they are likely to be ready for the various levels of generalizations in any given topic.

USE OF GENERALIZATIONS IN TEACHING

A generalization is a teacher tool and therefore is not given to the student. A generalization should be an outcome of teaching. Students discover the generalizations at each level through well-selected learning

experiences provided for them. Students arrive at generalizations inductively, by moving from the known to the unknown. They use it deductively, by moving from the general to specific application. Individuals of above average intelligence seem able to generalize with little guidance, but most people must work to develop this ability. The first step in teaching students to generalize is to plan and use situations in which the facts you wish to present -can be pointed out. The next step is to help students locate similarities and differences among the factors in a situation. Such conclusions should be tentative because a single experience may not provide enough information for the forming of valid generalizations. In order to help students test the soundness of their generalization, the class should examine the following:

- Do you have evidence to support the generalization (research, word of specialist, etc?)
- Is generalization applicable to similar situations?
- Is generalization likely to not be outdated?
- Have you been sufficiently cautious in your statement?
- What assumptions underlie this generalization? Are they sound?

Additional experiences in discovering and organizing the same facts are necessary before students should be encouraged to accept their tentative generalizations. Fourth, help the students summarize the importance of ideas and then to make application of the generalizations in situations with which the student is familiar. Ask questions which require the application of the generalizations in order to answer them. The use of generalizations is not a teaching method in itself, but should be a part of all classroom teaching. On page 97 of Teaching Nutrition is a lesson plan to illustrate the development of generalizations in a nutrition unit. The following is a lesson plan for helping students develop generalizations related to selecting a pattern and fabric suitable for beginners in clothing construction.

Students in this class would be nearing completion of a simple project not requiring the use of a pattern, such as a draw string bag or draw string half apron. For several days before introducing the project have on a bulletin board or flannel board pictures of simple-to-make blouses for the new fashion trends for the season with a caption such as "Why Would These Be Fun to Make?"

Aims: To be able to choose a pattern suitable for beginning construction in clothing.

To be able to choose fabric suited to beginning construction.

CONTENT	LEARNING EXPERIENCES AND AIDS
<p>Facts: Fabrics that are easy to sew are plain color or printed on grain, light or medium shade or value, firmly woven, and do not have a resin finish.</p> <p>Pattern styles that require sharp curves, round or pointed corners and topstitching, are more difficult than straight or slightly curved seams.</p>	<p>Secure three or four blouses-from stores or students. Each blouse should have a variety of characteristics. Some might be: plain or striped cotton, collarless and sleeveless; navel or dark cotton with round or pointed collar; plaid or striped blouse with convertible collar.</p>
<p>.Pattern styles that require fitting at waistline are more difficult than loose-fitting blouses, etc.</p>	<p>Students would examine each blouse for characteristics that would make it simple or difficult to construct in regard to fabric, construction processes and fit. Have students record on the board their decisions on a chart. (See illustration at end of lesson plan, have students add to the list by noting characteristics of blouses which class members or teacher are wearing.</p>
<p>Student Generalization A simple-to-make garment is one that has a style that requires very little fitting, construction processes that are fairly simple, few pattern pieces, and uses a fabric that is easy to sew.</p>	<p>After examining all the blouses, have students summarize the characteristics of a simple blouse for a beginner.</p>

Teaching materials needed:

Garments illustrating simple-and difficult- to-make blouses.

Evaluation of progress made toward aims: Teacher observes choice of fabric and pattern for class projects and home projects. In a subsequent lesson, to help students understand further the new learnings in the construction of a blouse, show filmstrip “HOW TO MAKE A BLOUSE”.

At this time, have students look for three major points in construction:

- 1 . Importance in selecting a simple-to-make style and fabric.
2. Main steps in laying out, cutting, and marking.
3. Sequence in construction - major units only (front, back, neckline sleeves, side seam, hem.)

SOME PROBABLE CONCLUSIONS FROM EXAMINATION OF SEVERAL BLOUSES*

	Simple	More Difficult	Most Difficult
Style of blouse and fit	Unfitted over blouse	Fitted overblouse, darts at waistline	Attached or fitted band at lower edge
Fabric Plain or print	Plain	Small all-over print	Woven plaid or printed stripe
Colour	Medium value	White	Navy or black
Texture	Firmly woven	Loosely woven	Loosely wove
Finish	Sanforized		
Construction Processes			
Neckline	Slightly curved No opening or collar Fitted facing used	Round or pointed collar attached with fitted facing	Middy or convertible collar
Trim	None	Top stitching	Lace or tucks
Fastenings	None	Buttons and buttonholes	Neck zipper
Seams	Plain		Flat fell
Darts and/or dart tucks	Underarm	Plain	Underarm and waistline
Sleeve or armscye	Sleeveless with fitted facing or a turn back hem	Waistline Raglan sleeve with hem	Set in sleeve

Each blouse will probably have some characteristics that are simple and other characteristics that may be more difficult or most difficult.

From examining blouses, before looking for patterns, pupils can develop judgment in selecting a simple-to-make style.

Since a generalization applies to many cases or situations, the individual who is guided by general generalizations is more likely to recognize differences in situations, even when they appear similar. He is less like to rely upon a technique just because it has been used before; more like] to recognize the necessity either of a new technique or for a variation in techniques previously employed. Both generalizations and techniques are

necessary, but generalizations must precede techniques in importance if the individual is to be flexible, intelligent, critical and creative. Generalizations without techniques and methods are futile; techniques minus the "why" and "when" tend to be blind and purposeless.

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