INFLUENCE OF MESSAGE STRUCTURE AND ART WORK ON APPARENT STAND OF MESSAGE WRITER

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THESIS

This is to certify that the

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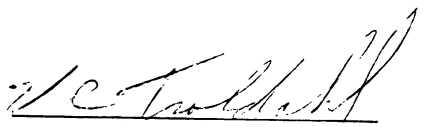

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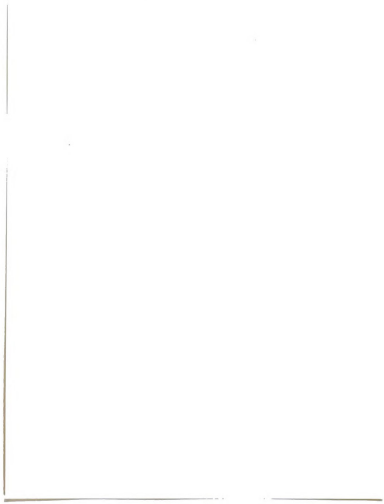

ABSTRACT

INFLUENCE OF MESSAGE STRUCTURE AND ART WORK
ON APPARENT STAND OF MESSAGE WRITER

by Hugh M. Culbertson

The study sought to identify message properties which affect reader beliefs as to how "pro" or "con" a message is. Experimental messages dealt with controversial topics.

Since agricultural topics were used, data was collected from 193 farm people in southern Michigan. Respondents included seniors in high school vocational agriculture, leaders and rank-and-file members of the Michigan Grange and Farm Bureau, and a few college students. Self-administered questionnaires were used.

One major predictor variable was iconicity--the degree of resemblance between symbol and referent. It was assumed that message forms vary in iconicity from photographic pictographs (very high) to outline pictographs (fairly high), bar graphs (fairly low), and words alone (very low).

The experimental message presented both pro and con arguments about a farm policy issue. A person who saw the message as "pro" was assumed to weigh "pro" arguments highly in interpreting the total message.

It was hypothesized that increasing the iconicity of one message part (in this study, the "pro" portion) would

lead readers to see the total message as agreeing with the position supported by that part. This proposition was not confirmed.

It was also felt that increasing iconicity should make readers more certain of stands they attribute to a message. This hypothesis was not confirmed.

Lack of iconicity effects was speculatively attributed to two factors. First, readers may have lacked the training, ability, and motivation to consider subtle iconic cues in determining message stand. Second, the farm-policy topic discussed was rather academic. Perhaps iconicity would influence perception more with sensational, pictorially vivid topics and arguments.

A second phase of the study dealt with two message properties--comparative core dominance and contextual relevance. This analysis focused on how interpretation of a particular quantity (a core quantity) might influence the stand attributed to an article writer. A core quantity should appear large compared to a small standard of comparison, small along side a large standard.

The core quantity was held constant in all treatments. Comparative core-dominance was defined as high when the context (standard of comparison) was low, as low when the context quantity was high.

Some contexts appear more relevant or useful than others in assessing a particular core. Agricultural economists agreed that Michigan farmers often choose

between raising beef cattle and raising dairy cattle. Thus, dairy income (context) was considered highly relevant to beef income (core) within a message about beef cattle. Peach income was of low relevance to beef.

Core-dominance findings must be regarded as tentative pending further tests with a more refined index of perceived writer stand.

However, there was some evidence that, as hypothesized, increasing comparative core-dominance (estimated beef income compared to dairy or peach income) often makes a message writer appear to favor the core topic (in this study, raising beef cattle). This relationship held mainly where:

1. Contextual relevance was high.
2. Readers saw the core quantity (beef income) as important in assessing the core topic (the wisdom of promoting beef cattle).

There was a tentative indication that comparative core-dominance might influence perceived writer attitude in a non-linear way. A rationale to explain such effects, focusing on reader attitude, was suggested.

Raising core-dominance was expected to make readers more certain of apparent writer stand. Results here were in the predicted direction but were not significant.

Two reader attributes--comprehension ability and attitude intensity--were studied. Hypotheses that these

factors should influence how readers use message traits in inferring writer attitude were not confirmed.

Practical and theoretic implications of the core-dominance and contextual relevance notions were summarized.

INFLUENCE OF MESSAGE STRUCTURE AND ART WORK ON APPARENT STAND OF MESSAGE WRITER

By

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CHAPTER I

REVIEW OF LITERATURE AND HYPOTHESES

Introduction--The Problem

Where does a reporter or columnist stand on an issue? How strongly does reporter Joe Smith favor high price supports to farmers? Just how staunch a Democrat is columnist John Doe?

People probably ask such questions often in reading about controversial issues. The answers decided upon doubtless depend partly on how Joe Smith and John Doe present their messages. This study will focus on message properties--a relatively unexplored area in the social judgment literature (Sherif and Hovland, 1961; Sherif, Sherif and Nebergall, 1965).

One might try to decide how pro or con a message is for at least two reasons.

First, the attributed stand might aid a person in evaluating the source as well as message content. One may discount Walter Lippman because his messages are one-sided and obviously biased. Or one may take Westbrook Pegler with a grain of salt because he is a wishy-washy fence straddler.

Second, receivers may shift their own views toward the source's apparent position. This seems especially likely where:

a. The source is highly credible.

b. The receiver lacks the skill, information, and time needed to critically assess message content and develop his own highly personal views on the issue.

Under these conditions, a receiver may be inclined to simply "take the word" of a highly credible source on the matter. This may often happen with highly technical material.

Sherif, Sherif, and Nebergall (1965, p. 144) note that messages which are not clearly one-sided may be particularly difficult to assess. That is, the precise pro-con values readers attribute to such messages often vary across types of readers and methods of presentation.

The present research area seems important to several types of communicators. Government change agencies, such as the Cooperative Extension Service, often avoid taking an explicit stand, hoping the receiver will "make up his own mind" (Kelsey and Hearne, pp. 100-101). As a result, an agency message may often be ambiguous and hard to assess as to apparent stand. The reader may do any one of several things:

a. Decide he cannot attribute any stand to the message.

b. Attribute a neutral stand.

c. Attribute a pro or con stand, perhaps depending somewhat on properties of the message itself.

The agency may want to appear neutral. A public belief that agency people do take sides, perhaps resulting partly from message properties, could reduce public respect and support for the agency.

Editors often use art work to emphasize an article or argument. They often do so deliberately. But at other times, art used for clarity may make an article seem biased even though the author wants to appear neutral.

Readers may need to get their "guard up" in interpreting articles. Made aware of art work's impact, a reader may:

a. Use art work as an effective cue in deciding where an author or editor stands.

b. Become more apt to evaluate a message's merit and implications on the basis of what that message says, not on its physical attributes alone.

Economists and other technical specialists frequently use numbers. Readers can generally interpret a number only after deciding how large or small that number seems. This, in turn, depends on one's standard of comparison. The number 10,000 seems large compared to 100, but small compared to ten million.

This study investigates the influence of two types of factors on the stand or attitude attributed to a message writer:

a. Art work used to clarify and emphasize part of an article.

b. Numbers which may provide a standard of comparison for other numbers within the same article.

Definition of Concepts

To start with, it is important to briefly define, at a conceptual level, several key concepts used in the study.

First, consider a message composed of two parts--a standard and an experimental portion. Such a message was used in the iconicity experiment.

STANDARD PORTION	EXPERIMENTAL PORTION

The standard portion presents a number of arguments favoring one side of an issue. In all treatments, the standard portion is the same and purely verbal. It presents viewpoints for only one side of the issue covered.

The experimental portion presents arguments of a quantitative type favoring the opposite side of the issue. This portion is varied on certain message attributes in the three experimental versions used.

Criterion Variables

Two dependent variables are studied--each dealing with an aspect of how people attribute a position on a pro-con continuum to the writer of a message.

1. Perceived source attitude on message topic. This variable was measured similarly in the study's two separate experiments--one dealing with iconicity and the other with comparative core-dominance. It will be helpful to discuss each version separately.

In the iconicity experiment, perceived source attitude is assumed to reflect the relative weight given one message part in interpreting the whole. That is, given a set of pro arguments and a set of anti points, which side seems to dominate as the reader assesses the total message?

Tannenbaum (1955) has referred to the basic idea of weighting as indexing. Given two stimuli at once, a person may respond mainly to one of them. Tannenbaum suggested further study of what causes such stimulus dominance.

Weighting is also implied by the Osgood-Tannenbaum congruity hypothesis (Osgood and Tannenbaum, 1955). Assume one gives "responsible" a rating of +1 and "courageous" a rating of +3 on a semantic differential scale. The hypothesis implies "courageous villain" would be rated more positively than "responsible villain." "Courageous" would carry more weight than "responsible" when combined with "villain."

In everyday life, a person may try to assess his newspaper's political leanings. The paper may not explicitly come out for either party. But the reader may note the paper runs more front-page pictures of Democrats than of Republicans. Based on this, the reader may weigh pro-Democratic items heavily and conclude the paper is really Democratic.

In the comparative core-dominance experiment, perceived source attitude is assumed to reflect the apparent magnitude of a particular quantity--called a "core" quantity. Further definition must await clarifications of certain other terms (see p. 31).

2. Reported certainty as to just how pro or con the total message seems to be. Guttman and Suchman (1947) regard certainty as an aspect of attitude intensity. However, apparently no one has investigated certainty in social judgment. Levy and Richter (1963) have dealt with a possible correlate (or perhaps even, one could argue, an operationalization) of uncertainty--amount of time required to assign an overall rating to a group of stimuli.

Independent Variables--Message

The assimilation-contrast research tradition, spearheaded by the Sherifs, used receiver stand to predict attributed message stand on issues. However, very few studies have used message properties to predict attributed message stand.

Sherif, Sherif, and Nebergall (1965, p. 146) recently pleaded for more emphasis on message properties as predictors. They note that "leaving these issues in the realm of research methods amounts to neglecting important stimulus variables which operate in real-life social judgment." The present study is a beginning attempt to fill this gap.

One major message-property predictor was iconicity--the extent to which a message element shares attributes with referent objects or processes. Dale (1951, pp. 37-52) has stressed this variable in discussing his "cone of experience." The present labelling follows Morris, who referred to signs resembling their referents as iconic (1946, pp. 190-192). Gibson (1954) referred to iconic signs as projective. Ruesch and Kees (1956, p. 8), Hochberg (1962), and Harrison (1964) have called them analogic.

In addition to iconicity, attention was given to the type of context for one set of quantities provided by other quantities wihin the same message. This analysis will follow leads suggested in early social judgment research spurred by traditional psychophysics. Rogers (1956), McGarvey (1963), and Volkmann (1953) pioneered in discovering that context greatly influences perception of a message.

Two context properties were studied. One of these was comparative core-dominance. This can best be explained with an example. A normal-sized man may appear tall when compared with a midget, short when compared with a

basketball player who is seven feet tall. Here the midget and the seven-footer provide different standards of comparison used in judging the normal man.

It will be useful to define some terms, using this example. The normal-sized man--the thing being judged--is the CORE content. The midget and the huge basketball player--standards of comparison for judging the normal-sized man--make up the different CONTEXTS for that man.

The normal man towers over the midget (i.e., he appears large when compared with the midget). Hence, the normal man has high COMPARATIVE CORE-DOMINANCE when compared with the midget. The same ordinary man, however, has low COMPARATIVE CORE-DOMINANCE when compared with the seven-foot giant.

Helson's adaptation-level theory specifies that one assesses any stimulus X by comparing it with a central tendency measure (adaptation level) of a stimulus series which includes X.

Adaptation-level theory and allied models have not found widespread use in social-judgment (i.e., judging other than purely physical properties such as weight).

However, Helson (1948, 1959) and Bevan (1958) insist the theory is relevant to social judgment. In related studies, McGarvey (1943), Sherif (1963), Levy (1960), and Upshaw (1962) have successfully predicted the social-judgment effects of altering context. For example, "BANK TELLER" might be rated high on occupational prestige when presented

within a series of jobs such as "street cleaner" and "factory worker." "BANK TELLER" would appear far less prestigious, however, when rated along side "college professor" and "President of the United States."

Receiver Variables

First is intensity of receiver attitude on the issue in question. Guttman and Suchman (1947) define intensity as conviction or certainty with which an attitude is held.

Second is the receiver's ability to comprehend and assign meaning to the message.

Commitment and comprehension ability will get further elaboration in the brief theory review to follow.

Some Theoretic Considerations

Anchors in Perception

Sherif and Sherif (1956, p. 62) define an anchor as a factor which plays a relatively large part in determining the nature of a percept. They note several classes of anchors.

1. External--outside the perceiver. These anchors include distal stimuli (and also, presumably, light waves and other processes mediating between distal-stimulus and receptor activation). Also included are social definitions which, as Festinger and Aronson (1960) say, one must rely on in drawing certain conclusions.

2. Internal--within the individual. Sherif is not too clear about the nature of these anchors. But to the current author, it would seem essential to distinguish at least four classes.

a. Moods, attitudes, desires, wants, and stands. Much research on selective perception and interpretation seeks to clarify the role of these anchors. [See, for example, Hyman and Sheatsley (1947), Allport and Postman (1947), and Leuba and Lucas (1945).] In a typical study, University of North Carolina students estimated that southern cities (for example, Atlanta) were closer to Chapel Hill than equally distant northern cities like Philadelphia. Attitudes toward a region apparently distorted perception (Carter and Mitofsky, 1961). In the present study, attitude intensity falls in this category.

b. Experience-based stimulus series or frames of reference. For example, we often hear about billions of dollars these days. As a result, we may have a high standard of comparison in judging amounts of money. A million dollars probably seems much smaller now than it did fifty years ago. Much early work spurred by traditional psychophysics deals with this area. Rogers (1941), McGarvey (1943), and Volkmann (1953) were pioneers.

c. The ability to make certain distinctions, to classify entities on certain variables. Kelly (1955), Bruner et al. (1960), and Berkowitz (1963) consider the nature of such variables (also often called concepts or constructs) and the determinants of their use. Note that we here deal with ability to sort or distinguish things as similar or different on some variable. This seems distinct from, and perhaps prior to, the question of judgment scale width (2b above). That is, one must distinguish hot from cold objects (anchor type 2c) before he has a temperature judgment scale which might be widened by exposure to a series of boiling or freezing objects (2b). Comprehension ability seems to fall primarily in this class of anchors.

d. Tendencies to see the world as organized, to perceive in accordance with the Gestalt laws of organization. Kohler (1959, p. 82) believes that these tendencies are virtually independent of past learning.

Helson (1959) makes a related distinction between three interrelated classes of perception determinants:

a. Stimuli in the focus of attention when one makes a social judgment. These are clearly external anchors in Sherif's terms.

b. All other stimuli, perceived now or in the recent past, which serve as a standard of comparison in assessing central or focal stimuli.

c. Events in the more distant past and present organism states. Helson throws "beliefs, attitudes, and cultural factors" (internal anchors to Sherif) into this residual category.

The anchor types do not always seem clearly distinct. It would seem few, if any, anchors are completely external. A microscope picture that is very vague (hence providing what Sherif might call weak external-physical anchorage) to a neophyte may be very clear to a trained scientist. That is true because the scientist has high comprehension ability--a type of internal anchorage.

However, the distinction has led to much research viewing perception as a sort of "tug of war" among types of anchors. Weakness in one type leads to heavy emphasis on other types, this research suggests. Studies support at least two basic conclusions.

I. Social factors--a type of external anchor to Sherif--tend to predominate where physical ones are conflicting or lacking.

Luchins (1945) had subjects tell what they saw in an ambiguous drawing. The tendency to see a face in the drawing was:

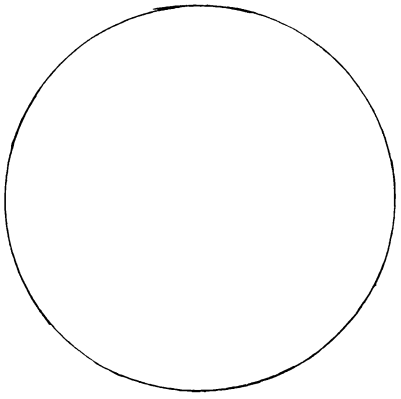
a. Strong where a nearby confederate, ostensibly looking at the same figure, reported seeing a face.

b. Weak where part of the drawing closely resembled something other than a face.

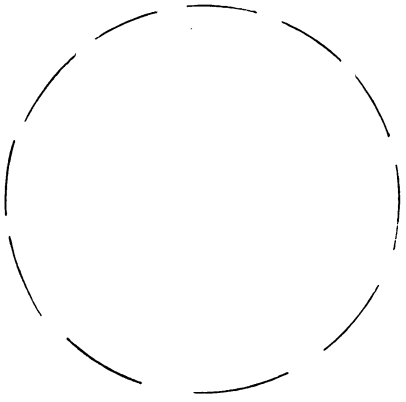
Confederate comments like "It's a face" influenced response little in this situation.

Thrasher (1954) asked respondents to look at a circle and imagine twenty equally-spaced concentric circles within it. The experimenter then flashed on a light within the outer circle, and respondents estimated which of the twenty imaginary circles touched the light. Ambiguity was varied as in the following circles.

Low ambiguity (outer circle)



High ambiguity (outer circle)



Subjects first judged alone. Then, in later trials, a confederate partner judged, too. Confederate influence was greatest where the simulus was ambiguous (i.e., where firm external anchorage was lacking).

Miller and Tiffany (1963) studied the effect of social pressure on identifying speech sounds. As in the above

studies, confederates influenced judgment most where discrimination was most difficult when carried out alone.

Crutchfield (1955) used a light panel to create an artificial group situation. Respondents made perceptual judgments after seeing how other judges (who, without the respondent's knowing it, were fictitious) responded. Conformity to an erroneous group standard varied from about 30% on an unambiguous perceptual task to 79% on a highly ambiguous one.

II. Internal anchors tend to play an increasingly important role as physical ones become more scarce or ambiguous.

Marks (1943) first asked respondents to indicate what skin color they liked best. He then found some tendency to distort the perceived skin color of attractive persons in the direction of one's most liked color. Skin color, Marks assumed, is hard to discriminate finely and accurately.

Cantril (1938), in a 1938 survey, asked respondents to predict the outcomes of certain current trends and issues. He also asked their preferences about these outcomes.

In general, preference influenced prediction little on clear-cut issues (i.e., everyone agreed Hitler was likely to stay in power for a few years in view of his sheer physical power). But on more vague issues based less clearly on particular physical events (for example, the future course of the war), personal preferences greatly influenced prediction.

Thistlewaite (1950) reported that "loaded" symbols such as the word "Negro," when inserted in syllogisms, reduced success in logical operation. Thistlewaite assumed that loaded words activated attitudes, which distorted reasoning. Such distortion was greatest where syllogisms were ambiguous at the outset (i.e., where solution proved difficult even with logical symbols like X and Y).

Later, we will base several hypotheses on a proposed "tug of war" between internal anchors and message properties.

Our second basic principle noted above specifies that internal anchors play a key role where physical or external anchors are lacking. The present study will investigate the other side of the same coin (that is, physical anchors are especially important where internal ones are lacking).

It is now appropriate to turn to message iconicity, which many people assume contributes to the strength or degree of external anchorage in perceiving a given message.

Iconicity

Ruesch and Kees (1956, pp. 8-9) state the common view that highly iconic messages tend to have a figural character in perception. These authors believe pictures have an impelling immediacy generally lacking in words.

Swanson (1955), analyzing data from the Continuing Study of Newspaper Readership, notes evidence that pictures are good attention-getters. In 130 newspapers studied, cartoons, photographs, and photograph cutlines made up only

18% of all items printed. Yet they accounted for 51% of total readership (i.e., instances in which a person reported having noted a particular item).

Spaulding (1955), reviewing several studies of children, noted a widespread preference for pictorial lessons over straight text.

In general, however, systematic theoretic explanation of pictures' perceptual dominance has been lacking. A number of explanations could be suggested.

First, MacLean and Hazard (1953) quote Kearl as suggesting editors use pictures to communicate about things worthy of strong play. A glance at most papers--particularly local ones, perhaps--reveals many local human interest photos plus pictures of attractive and novel subjects (for example, cheesecake). Further, editors often use photos to play up big national and international stories. As a result of all of this, we may come to associate photos with interesting topics. Art work may, in a sense, gain secondary reinforcing properties. It may signal that the content is worth emphasizing (and perhaps that the author wishes to emphasize it).

Man has long iconically symbolized the interesting and important, according to Read (1955, pp. 32-33). Cavemen drew mostly animals, which generally meant the difference between life and death. Perhaps drawing was hard work, so the caveman took time to draw only salient, important objects.

Second, relating a digital sign to its referent requires learning. Osgood's mediation hypothesis (1955, pp. 392-412) suggests a sign learned via representational mediation cannot have meaning (i.e., elicit a mediating response) without prior contiguous association between sign and significate. Gibson (1954) points out, however, that a person from any country could normally match an American photo (in Gibson's words, a non-conventional surrogate) with its referent without having previously associated photo with referent. Without learning, in short, the non-iconic sign cannot have much meaning or impact. The iconic sign can.

Third, learning theory--particularly that of Osgood--suggests possible differences between responses to iconic and non-iconic stimuli even where associative learning has taken place.

a. One might respond to highly iconic messages as a result of stimulus generalization from the referent object. According to most learning theories, the sign apparently should then elicit the entire response associated with the referent in such a case.

b. Such generalization seems unlikely with a digital (non-iconic) sign. Osgood (1955, pp. 392-412) stresses representational mediation is a key to verbal learning. And in mediated learning, some components of response-to-significate are assumed

not to occur as parts of the mediating response-to-sign. IT SEEMS POSSIBLE THAT THE ABSENCE OF THE ELIMINATED RESPONSE COMPONENTS MAY ACCOMPANY REDUCED PERCEPTUAL EMPHASIS ON THE SIGN. For example, the words "man-eating tiger" (sign) may have less attention-getting power than a real man-eating tiger (significate).

The above arguments are somewhat tentative. Yet combined with other points to be mentioned later in discussing particular types of iconicity, these arguments suggest highly iconic messages will generally provide what Sherif might call strong external anchorage. This will be the basic rationale for hypotheses dealing with iconicity.

Message components seem to have the following increasing order of iconicity.

1. WORDS (highly digital, non-iconic)--Except in rare cases (i.e., bow-wow), words share few physical attributes with their referents.

2. ORDINARY BAR GRAPHS--Say a graph shows Texas has 12 times as many cattle as Michigan. The bar labelled "Texas" will be 12 times as long as the bar labelled "Michigan." Hence, the bars and their referents (the Michigan and Texas cattle populations) resemble each other in one respect--relative magnitude.

3. OUTLINE PICTOGRAPHS--Such a graph resembles its referent as to magnitude. A pictograph may show a row

of 12 small cattle silhouette drawings for Texas compared to one for Michigan. Pictographs also portray shape which, as Hochberg (1962) points out, seems crucial in perception.

4. PHOTOGRAPHIC PICTOGRAPHS--Here photographs of a cow, hog, or other animal would be used as symbols in the pictographs. Of course, the photos would be reduced to relatively small size. The photos would present markings on the objects (for example, spots on a Poland China hog). Such detail involves what Berlyne (1957, 1958, 1960, Chapter II), would call high complexity--an alleged attention-getting property of stimuli.

It is now time to deal with substantive hypotheses.

Hypotheses

Hypotheses fall in two broad groups. One group of four focuses on iconicity. A second group of six hypotheses deals with "comparative core-dominance" effects.

Iconicity

Experimental portions will be in the following increasing order of iconicity: verbal, bar graph, outline pictograph, and photographic pictograph.

Iconicity on three distinct types of referent attributes will be varied:

a. Magnitude. Bar graphs will be high, verbal messages low, on this type of iconicity. Both of these message forms are low on iconicity of shape and detail.

b. Shape. Outline pictographs and bar graphs differ on only this one type of iconicity. Outline pictographs are high, bar graphs low.

c. Detail. Photographic pictographs are high and outline pictographs low on this type of iconicity.

The "Guttman scale" relationship among the various message forms is summarized in the following table.

Type of Iconicity	Message Form			
	Verbal	Bar Graph	Outline Pictograph	Photographic Pictograph
Iconicity of detail	Low	Low	Low	High
Iconicity of shape	Low	Low	High	High
Iconicity of magnitude	Low	High	High	High

Each type of iconicity requires a separate theoretic treatment in developing the rationale.

Inconicity of magnitude.--It is reasonable to speculate that Gestalt psychologists may stress visual perception partly because one can generally see the several parts of a configuration at almost the same time. Such stimultaneous perception of parts seems essential for Gestalt principles of organization to operate.

Grasping a trend or making a comparison involves considering two or more quantities at one time. Iconicity of

magnitude should facilitate perceiving the quantities "at a glance" (i.e., at one time). The gestaltist view that simultaneous perception of elements aids comprehension finds support in two studies on graphs at the University of Wisconsin:

1. Feliciano, et al. (1962) found bar graphs more comprehensible than verbal material or tables in presenting economic information, most of which involved comparison and simultaneous consideration of two or more quantities.

2. Culbertson and Powers (1959) found graph comprehension best where information-giving components within a graph were spatially close together. Identifying labels right on bars proved superior to a system of cross-hatched keys off in a corner of the graph. Also, for several kinds of interpretive operations placing numbers right on bars worked better than a grid system with numbers at the graph's edge. One could interpret these results in gestaltist terms by assuming spatial contiguity of elements promotes simultaneous perception required to match identifying elements (labels) with quantitative elements (bar lengths or numbers).

The Wisconsin research dealt with comprehension as a criterion variable. The present researcher further assumes clear comprehension of an argument influences weighting of that argument. In short, a person probably does not pay much attention to that which he fails to understand (unless,

of course, he is forced to or does so merely for the challenge involved).

Bar graphs may also have some attention-getting value because they are fairly novel. That is, the average reader probably seldom runs across them in the popular press. Berlyne (1960, Chapter II) hypothesizes that novel stimuli have particular attention-getting power.

Iconicity of shape.--Hochberg (1962) implies iconicity of shape is important. He suggests a shape's boundaries help isolate it within a perceptual field. Such isolation seems essential to singling out the object for emphasis.

Attneave (1954) found a tendency to concentrate attention along contours, particularly at points of direction change. Asked to portray an object with dots, Attneave's respondents placed most of their dots at points of direction change alone the object's boundary.

Berlyne (1960, Chapter II) hypothesizes that complex stimuli (that is, stimuli with many lines and many changes in contour) have high attention-getting value. Pictographic symbols generally seem fairly complex, since they include contour changes found in the referent object.

Several studies support Berlyne's view that complexity is an attention-getter.

In one case, Berlyne (1958) showed infants a series of designs, two at a time. Subjects tended to look first at designs with the most changes in contour.

In another study (Berlyne, 1957), respondents looked at figures in a tachistoscope. They could have as many exposures to a given figure as they wanted simply by pressing a key. In one series, the mean number of exposures per figure ran as follows:

Subject	Number of Contour Changes	Mean No. of Exposures Sought by Pressing Key
Circle	0	1.2
Square	4	1.6
Octagon	8	1.8
Irregular closed curve	Infinitely large	3.2

Berlyne concludes that complexity made people "curious." The more contour changes a figure had, the more people wanted to keep looking at it.

Berlyne also asserts that novelty aids attention-getting value (1960, pp. 18-25). Pictographs are probably even less common in the popular press than are bar graphs. The resulting novelty should add to pictographs' impact or external-anchorage strength.

Iconicity of detail.--Photographic pictographs show the referents with more physical detail than the other three message forms. This involves high complexity (i.e., many lines and contours) in Berlyne's sense.

Like Berlyne (1960, pp. 38-44), writers such as Ruesch and Kees (1956, pp. 8-9) feel photographs have impact largely because of their detail. And Neuhaus (1924, p. 155) commented that "a more or less differentiated pattern in a drawing . . . will draw the eye from the lightly developed part toward the more expressive."

In research with an eye camera, Buswell (1935, p. 142) found two general patterns of eye movement while viewing pictures:

a. First, one casually surveys the entire picture. The eye pauses only briefly.

b. Second, the eye fixates for longer periods on certain particular features.

Many of Buswell's respondents concentrated their attention on areas rich in detail (1935, pp. 97-102). For example, most people fixated at length on an ornate picture window in a cathedral.

Besides being complex, photographic pictographs are very unusual--probably even more so than pictographic drawings--in printed matter. As mentioned earlier, Berlyne (1960, Chapter II) suggests that novel, unusual stimuli have relatively high attention-getting value.

Iconicity effects and internal anchors.--Hypotheses will specify that iconicity influences message interpretation most where the reader has low ability to comprehend the message as well as low-intense attitudes on the issue

discussed. This argument stems from the Sherif view, discussed earlier, that perception is a "tug of war" between internal anchors (including attitude and comprehension ability) and external anchors (whose strengths are hypothesized to be directly related to iconicity).

Iconicity and comprehension level.--A novice graduate student finds it helpful if not essential to talk about complex relations such as interaction effects by diagraming on a blackboard. A Paul Lazarsfeld, however, could probably analyze first-order interactions "in his head." His high comprehension ability makes concrete external cues unnecessary.

It is assumed comprehension ability involves mastery of concepts and principles as defined below.

A concept is a variable used to make sense of one's psychological world. Take "elasticity of demand." A product is "elastic" if a big change in quantity sold generally accompanies a small change in price. It is "inelastic" if a big change in prices goes along with a small change in sales.

A principle is a generalization or universal statement. Unlike a concept, it is often empirically testable (or at least, falsifiable). Take the statement "farm products have inelastic demand." Economists can check such an assertion by looking at sales and price trends.

Gagne (1965, pp. 47-51) is particularly explicit on concept learning. Take sex. In learning this concept, one soon finds:

a. Some attributes like hair color have little value in telling men from women. In Roger Brown's terms, these attributes have very low criteriality (1959, pp. 10-11).

b. Other attributes like hair curliness have some value in telling men from women. However, criteriality appears far from perfect in this case. In fact, it is declining on many university campuses.

c. Still other attributes like body shape have perfect criteriality. That is, body shape appears to be an unfailing indicator of sex.

To Gagne, concept learning involves discrimination on the basis of criterial attributes. In learning "sex," one must develop a steep generalization gradient on the attribute "body shape," along with a flat gradient on "hair color."

A farmer may learn the elasticity concept by checking only egg prices and sales. But he understands the notion only if he can <u>apply</u> it <u>widely</u>. He must be able to decide whether any product is elastic or inelastic (given appropriate data, of course).

Angubel (1963, pp. 116-131), Flavell (1963, pp. 65-70), Gagne (1965, pp. 47-51) and Peel (1964, pp. 100-131)

agree one must attend to concrete stimuli in dealing with new or complex objects and relationships. In general, these men claim, we must have actual experience with objects before we can:

a. Use symbols to behaviorally react to particular aspects, implications, or properties of objects not physically present.

b. Develop concepts needed to state in general, abstract form relationships involving the objects.

This argument implies people need concrete, iconic cues in dealing with topic areas they have had little learning experience in. Such an argument provides the basis for interactions between iconicity and comprehension level as suggested in Hypotheses 3 and 4 (see p. 29).

In related studies, Tannenbaum (1953) and Tannenbaum and Kerrick (1954) found introductory statements and headlines influence message interpretation most where the author has little else to go on. Such cues, like art work, may often be viewed as attention-getting adornments.

Tannenbaum (1953) wrote several headlines for a news story about a fictitious murder trial. Some heads implied guilt, others innocence. Readers receiving "guilty" heads were most apt to conclude the defendant was guilty. What's more, heads influenced interpretation more with an

unfamiliar topic (fictitious murder trial) than with a familiar one (grading procedures).

Iconicity and attitude intensity: Research by Manis (1961) and others implies highly intense attitudes may greatly influence stands attributed to a message. In particular, Sherif, Sherif, and Nebergall (1956) hypothesize that contrast effects (perceiving a message as relatively far from one's own stand) dominate where the reader's ego involvement is high.

In a study by Hovland, Harvey, and Sherif (1957), alcoholics and WCTU members both tended to contrast articles about a hotly-debated referendum on Prohibition. High presumed involvement also apparently led to contrast effects in studies by Sherif and Hovland (1953) and Ward (1963), both dealing with racial segregation.

Where attitudes are intense, "external" factors such as iconicity should make relatively little difference. Such is the basis for interactions between attitude intensity and iconicity specified in Hypotheses 1 and 2 (see pp. 28-9).

Hypotheses involving iconicity are as follows:

Hypothesis 1: The higher a message component's iconicity, the more often a reader will see the writer of the total message as agreeing with the the viewpoint expressed in the iconic component, especially when the reader has a low-intense attitude on the issue.

Hypothesis 2: The higher the iconicity of components within a message, the more certain a reader will be of the stand he attributes to that message, especially when he has a low-intense attitude on the issue in question.

Hypothesis 3: The higher a message component's iconicity, the more often a reader will see the writer of the total message as agreeing with the viewpoint expressed in the iconic component, especially when he has low ability to comprehend the message.

Hypothesis 4: The higher the iconicity of components within a message, the more certain a reader will be of the stand he attributes to that message, especially when he has low ability to comprehend the message.

A final word seems in order on hypotheses 2 and 4, which deal with certainty of stand attributed to the total message. It is hypothesized that iconic cues within a message tend to contribute to clarity, emphasis, and sometimes one-sidedness. These factors should, in turn, add to the certainty with which people attribute stands to that message.

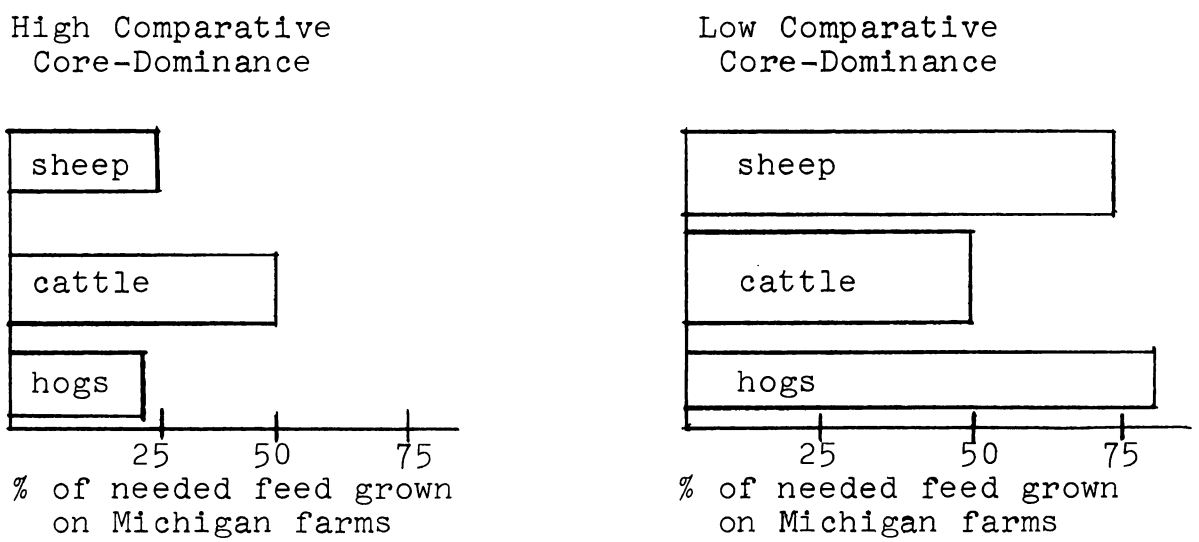
Comparative Core-Dominance

Communicators seldom present one piece of information in complete isolation. Let's say an editor uses one or two bars within a graph to show beef price trends. He may include other bars dealing with sheep and hog prices for either of two reasons:

a. To provide a standard of comparison which might be helpful in interpreting beef prices.

b. To provide information about sheep and hogs which might be of interest "in its own right" (i.e., apart from its utility in assessing beef prices).

Consider the following graphs, either of which might constitute part of a message arguing for expanded beef cattle raising in Michigan. The graph on the left shows Michigan farmers grow relatively little feed needed for expanded hog and sheep production. Feed supplies for cattle look large by comparison.



In the graph on the left, figures for cattle (core) look large compared to those for sheep and hogs (context, which provides a standard of comparison for assessing cattle). Stated with concepts discussed earlier, cattle have HIGH COMPARATIVE CORE-DOMINANCE with respect to the sheep-hog context. The graph appears to suggest a positive stand on the question: "Should raising of beef cattle be encouraged in Michigan?".

In the graph on the right, cattle obviously have relatively low comparative core-dominance. This graph appears less favorable to growing of beef cattle than the graph on the left.

It is now possible to give a clear, precise definition of one of our dependent variables--perceived writer attitude toward the topic. A writer is said to favor the core stand if he appears to support the pro-or-con position associated with the high values on the core variable.

Earlier it was suggested that relevant contextual cues influence assessment of core content more than do irrelevant contextual cues.

In any given case, whether contextual cues will be judged relevant should depend on at least two things:

a. Knowledge and comprehension ability of the receiver in dealing with the subject matter discussed. Here it is fruitful to make an assumption. The better-versed a respondent in the topic-area discussed, the more likely he is to agree with experts in that area on what is relevant and what is not.

b. Apparent similarity and other relations between "core" (here beef cattle) and "context" (sheep and swine). In the example, core and context appear similar (i.e., both refer to meat animals). Further, there are technical grounds for using

context (hogs and sheep) as a standard of comparison in assessing core (cattle). All three compete for consumer dollars. Hence, lack of available feed for sheep and swine argues for the possible profitability of beef expansion.

Three pairs of hypotheses are proposed, each dealing with an aspect of comparative core-dominance.

Core-Dominance Effects should Depend on Contextual Relevance

Adaptation-level theory implies a positive relationship between comparative core-dominance and perceived value of a given stimulus (Helson, 1948, 1949). Several studies confirm this relationship.

Fehrer (1952) had respondents rate statements on a militarism-pacificism continuum. Items appeared more militaristic when presented among pacifist items than when judged alongside militaristic items. McGarvey (1943), Upshaw (1962), and Rogers (1941) found similar evidence that people judge stimuli in light of context.

The economists' "opportunity cost" principle postulates that decision-makers assess a given alternative by comparing it with other alternatives (Homans, 1961, Chapter IV). In a related study, Blake, Berkowitz, Bellamy, and Mouton (1956) interrupted college classes to solicit volunteers for a research project. Many students volunteered where the only alternative was to take a pop quiz. Few volunteered when given the chance to go home.

In another study, Helson, Dworkin and Michels (1956) found context helps determine meaning for vague quantitative terms like "most," "a lot," "practically," and almost nobody." For example, "a lot" designated 58% of one hundred people, but only 47% of 1.7 million. The phrase "a lot" apparently seemed small when evaluated against a large context (1.7 million), larger when compared with a small context (100).

In several studies (Hovland and Sherif, 1952; Sherif and Hovland, 1953), respondents with extreme attitudes "contrasted" neutral items. For example, highly-committed pro-Negroes regarded neutral statements as anti-Negro. Adaptation-level theory accounts for this result given two assumptions:

1. A person's own attitude can influence his adaptation-level or standard of comparison.
2. Therefore, the more extremely pro (or anti) one's own view, the more pro (or anti) his adaptation-level becomes. A <u>pro</u> adaptation-level leads to <u>anti</u> judgments, hence to contrast effects.

Brown found evidence suggesting contextual relevance influences core-dominance effects (1953). Brown's respondents rated objects on a "very heavy . . . very light" continuum. Weight values assigned a core object depended heavily on weights of a contextual series of objects ONLY when core

and context looked alike. In the "alike" condition, both core and context objects were brass weights. In the "unlike" condition, core objects were weights, context objects trays.

"Similarity" in the Brown study seems somewhat analogous to "relevance" in the present investigation. The analogy is not perfect, of course. A ruler may be relevant to assessing a boy's height even though the ruler does not greatly resemble the boy. Nevertheless, Brown's results do support the present hypotheses if we assume, as seems logical, that context similarity to core implies context usefulness in assessing core.

Hypothesis 5: The higher a message's comparative core-dominance, the more often a reader will perceive the writer of the message as agreeing with the "core" topic, especially where the contextual content is relevant to assessment of the "core" topic.

Hypothesis 6: The higher a message's comparative core-dominance, the more certain a reader will be of the stand he attributes to that message, especially where contextual message content is relevant to assessment of the "core" topic.

Two kinds of assumptions suggest high certainty of attributed stand (noted in hypothesis 6) should generally result from high polarity of attributed stand (considered in hypothesis 5).

First, Sherif, Sherif, and Nebergall (1965) note that messages which are not highly polar may often be harder to judge with certainty, speed and agreement than are clearly

one-sided messages. Weiss (1963) and Levy and Richter (1963) provide evidence supporting this claim. And analogously, Guttman and Suchman (1947) argue for at least some positive correlation between polarity and certainty of respondents' own attitudes.

Second, low core-dominance (i.e., relatively large context values) should make "core" message content recede into ground in perceiving the total message. This, in turn, may make the "core" appear somewhat less emphatic and clear than with high core-dominance.

Well-informed respondents should take advantage of relevant context.--In the beef cattle example discussed earlier, the well-informed respondent is apt to see how information about swine and sheep may help one interpret the beef cattle situation. A novice reader, on the other hand, might not make full use of the data about swine and sheep.

In testing Hypotheses 7-10, relevance is based on assessment by farm-management specialists at Michigan State University. The hypotheses are based on the belief that, the more farm-management concepts and information one has learned, the more he will agree with specialists on what is relevant to core judgment.

Hypothesis 7: Given high contextual relevance, the higher a message's comparative core-dominance, the more often a reader will perceive the writer of the message as agreeing with the "core" topic, especially where he has high ability to comprehend the message.

Hypothesis 8: Given high contextual relevance, the higher a message's comparative core-dominance, the more certain a reader will be of the stand he attributes to that message, especially where he has high ability to comprehend the message.

Respondents of low comprehension ability may not ignore the irrelevant.--A beef-cattle expert ought to be able to identify and restrict attention to crucial facts and variables in interpreting beef-cattle messages. He may clearly see the irrelevance of irrelevant contextual material. Such context, then, ought not greatly influence his standard of comparison.

A novice, on the other hand, should be less able to sort out the relevant from the irrelevant in assessing information on beef cattle.

Hypothesis 9: Given low contextual relevance, the higher a message's comparative core-dominance, the more often a reader will perceive the writer of the message as agreeing with the "core" topic, especially where he has low ability to comprehend the message.

Hypothesis 10: Given low contextual relevance, the higher a message's comparative core-dominance, the more certain a reader will be of the he attributes to that message, especially where he has low ability to comprehend the message.

CHAPTER II

METHODOLOGY

Sampling of Topics and Respondents

The choice of topics and respondents will be discussed together. In both, two requirements were evident.

First, a fair number of respondents, but not all of them, had to feel strongly about the issues discussed. Topics in agricultural policy and economics were used because:

a. Farm policy means dollars and cents--perhaps generally a high-involving area--to many farmers and farm-related workers as well as to taxpayers.

b. Many farm-policy alternatives relate to deeply-held values. Programs which pay the farmer for growing nothing (as discussed in one set of experimental messages) may seem to violate the "Protestant ethic" view that people should earn what they get. Even non-farmers may feel strongly about such matters. At the same time, farm-policy issues generally appear complex, ambiguous, and controversial enough so not everyone will likely feel strongly committed to positions on them. In short, variation as to attitude intensity should be easy to attain.

In the study, respondents indicated they generally felt rather strongly about paying inefficient farmers to quit farming. About 14 of every 15 attitude intensity responses fell in the "very strongly" and "fairly strongly" categories.

Second, respondents must vary as to ability to comprehend the experimental messages. To insure this, several types of groups were tested:

a. Ten students in a senior-level agricultural economics course at Michigan State University. Such students should have a reasonably good grasp of principles and concepts in agricultural economics.

b. A total of 78 adult men at 12 Farm Bureau and Grange neighborhood discussion groups in three south central Michigan counties--Ingham, Livingston, and Clinton. Planting season--under way at the time of testing--reduced attendance at many of these meetings. Nevertheless, casual observation suggested the groups included farmers at varied levels of progressiveness and sophistication.

c. Sixty-three senior and junior high school students in four vocational agriculture classes at Fowlerville, Charlotte, Mason, and Eaton Rapids, Michigan. These groups appeared quite heterogeneous. Some relatively poor students take vocational agriculture,

according to educators at Michigan State University." Many bright boys also enroll, apparently attracted by training in public speaking and parliamentary procedure as well as other phases of the Future Farmers of America program.*

d. Forty-two men at four County Farm Bureau Boards of Directors meetings in southern Michigan. County directors should tend to be relatively gregarious, progressive farmers, according to state Farm Bureau Officials. Only full-time farmers are eligible to serve on county boards. Counties covered were Monroe, Hillsdale, Washtenaw, and Eaton.

Pre-Testing

Fifty-eight students in the Winter 1966 Agricultural Short Course program acted as pre-test subjects. Pre-testing was done during a single one-hour class period at the university.

Short course students appear quite representative of young Michigan farmers. The Michigan State University short course director stated that many were at best ordinary high school students. Others had high academic ability but elected not to enroll in degree programs for financial and other reasons.

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*Dr. Guy Timmons, associate professor of Education, emphasized this in a conversation with the author.

Respondents felt the experimental messages were comprehensible and reasonable. Pre-test data also permitted item-analysis on tests of comprehension ability and perceived source attitude. Pre-test item-analysis results are reported later in this chapter.

Operationalizing of Variables

Criterion Variables

Perceived source attitude on message topic.--Respondents read a message giving both pro and con arguments on paying small-scale, inefficient farmers to get out of farming--an oft-discussed but never tried proposal. The message was attributed to an unidentified agricultural economist (see Appendix B for the complete article).

One message segment, the experimental portion, that was varied on iconicity supported paying of small-scale farmers. The more a reader perceived the source as seeming to favor such payment, the more the reader must have weighed the "pro" experimental portion in interpreting the total message.

Instructions emphasized that respondents were to rate the message author's stand. They were not to evaluate the message's validity. Further, in rating the message, they were not to give their own stands on the issue. (They had already indicated their own views prior to getting the messages.)

Six Likert-type items were used to measure the message writer's perceived stand.* Each item was designed to force the respondent to attribute a global, overall stand to the message writer.

Following are two typical items from among the six used, along with instructions to the respondent:

> Following are some statements people have made about paying inefficient, small-scale farmers to get out of farming. Please read each statment. Then tell whether, in general, you feel the economist who wrote the article you just read agrees or disagrees with the statement. Also indicate how certain you are that he agrees or disagrees.
>
> If you feel uncertain about the economist's position, guess anyway. Please do not leave any blank spaces.
>
> 1. Paying inefficient, small-scale farmers to leave agriculture is apt to go a long way toward solving the nation's farm problem.
>
> _____ In general, the author agrees.
>
> _____ In general, the author disagrees.
>
> 2. No person in his right mind would really recommend paying small-scale, inefficient farmers to get out of farming.
>
> _____ In general, the author agrees.
>
> _____ In general, the author disagrees.

The items were positive toward the proposal half of the time, negative the other half of the time, to control for acquiesence response set. Respondents had to decide whether

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*In the questionnaire, items 33, 39, and 43 are positive items (that is, a person agreeing with these items presumably shows support for paying small-scale farmers to quit farming). Items 35, 37, and 41 are negative items (see Appendix A).

the author agreed or disagreed with each statement. A neutral or "undecided" category was not included, since it might have provided an "easy way out" of a rather difficult judgment task for many respondents. Thus, scores ranged from -3 to +3 on the 6-item test.

Eleven items were used in pre-testing. The six which survived item analysis correlated fairly highly and uniformly with each other. The item analysis was done on responses on the 58 pre-test subjects. Inter-item correlations varied from .12 to .59, with a median correlation of .32. All six items proved acceptable in the cross-validation with main-test respondents (n = 193). Median correlation was .23, with a range from .16 to .70, in cross-validation.

Perceived source attitude on topic.--It was assumed that the more emphasis a topic received in a message, the more the message source would be perceived as favoring that topic.

Respondents read a message, attributed to a county agricultural agent, about the pros and cons of raising beef feeder cattle in southern Michigan. Different amounts of emphasis were given to the estimated annual income expected if a farmer raises beef feeder cattle. The attitude being supported was favorability toward raising cattle. The more emphasis given to this expected income, the more the source should be perceived as favoring feeder cattle.

Following are instructions to the respondent along with two typical items:

> Now we would like to know what you think the county agent ought to do. That is, just how strongly should he come out for or against beef cattle, based on the information given?
>
> Below is a list of actions which the county agent might take. Please indicate the actions you think he should take, and the actions he shouldn't, based on the information given. Also indicate how sure you are of the answers you gave. Please answer each question, even if you're not sure of the best response.
>
> 1. Strongly advocate widespread adoption of beef feeder cattle in his county.
>
> _____The county agent should.
>
> _____The county agent should not.
>
> _____It is impossible to tell.
>
> 2. Tell farmers that beef feeding looks like a bad bet, not generally worth serious consideration.
>
> _____The county agent should.
>
> _____The county agent should not.
>
> _____It is impossible to tell.

Seven items were used in pre-testing. Two failed to survive item analysis. Median inter-item correlation for the five surviving items was .20, while other correlations ranged from -.02 to .47. In cross-validation, the correlations ranged from .00 to .33, with a median of .14.

Obviously the correlations were not very high, particularly in cross-validation. Nevertheless, items did "share enough variance" to warrant using them in testing hypotheses.* Findings should be regarded as somewhat

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*The median correlation of .14 obtained in the cross-validation significantly exceeds zero ($p < .05$, 2-alternative).

tentative, pending further tests with a more unidimensional index.

The five Likert-type items yield scores ranging from -5 (anti-beef) to +5 (pro-beef).* A neutral category (It's impossible to tell) was included here.

Certainty of attributed message stand.--The purpose here was to find out just how certain respondents were of the stands they attributed to sources. Two certainty indices were used--one in the iconicity experiment and another in the core-dominance analysis.

As noted earlier, six Likert-type items were used to measure perceived source attitude on paying small-scale farmers, five to measure writer attitude on beef cattle. After each item came a modified form of a question used by Guttman and Suchman (1947) to measure attitude intensity. In the iconicity analysis, this question was:

> How certain are you that the message author really takes the position that you've just indicated?
>
> 3_____ Very certain.
>
> 2_____ Fairly certain.
>
> 1_____ Not very certain.
>
> 0_____ Not certain at all.

---

*For the three positive items, see number 45, 49, and 53 in the questionnaire (Appendix A). For the two negative items, see numbers 47 and 51.

In the core-dominance analysis, the reader had to specify behaviors he thought a hypothetical county extension agent ought to take relative to beef cattle based on information provided. Here the question took the form:

How certain are you of the answer you just gave?

3_____ Very certain.

2_____ Fairly certain.

1_____ Not very certain.

0_____ Not certain at all.

Total scores could have ranged from 0 to 18 in the iconicity analysis, from 0 to 15 in the core-dominance analysis.

In the iconicity analysis (with certainty of stand on paying farmers), item-analysis correlations ranged from -.06 to .56 with a median of .37. In cross-validation, the range was from .29 to .70, the median .54.*

In the core-dominance analysis (with certainty of stand on beef cattle), item-analysis correlations ranged from .22 to .60, with a median of .41. In cross-validation, the range was from .29 to .50, the median .39.*

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*Items measuring certainty of attributed stand on paying small-scale farmers were No. 34, 36, 38, 40, 42, and 44 in the questionnaire (see Appendix A). Items measuring certainty on beef cattle were No. 46, 48, 50, 52, and 54 (see Appendix A).

Levels Variables (Receiver)

Intensity of attitudes on paying small-scale farmers to quit farming.--This variable figured only in the iconicity experiment. It was believed that a respondent's attitude would influence message perception most when the respondent felt strongly about that attitude.

As an initial step in measurement, respondents indicated their own attitudes on paying inefficient farmers. Likert-type questions here were identical to those used to measure perceived source attitude (except that here the questions asked for the reader's own stand).

After each Likert item, respondents got a question used by Guttman and Suchman (1947) to measure attitude intensity. The question was:

> How strongly do you feel about the answer you just gave?
>
> 3_____ Very strongly
>
> 2_____ Fairly strongly
>
> 1_____ Not very strongly
>
> 0_____ Not strongly at all

A person's intensity score was the sum of his individual ratings. Scores, summed over six items, might range from 0 to 18.

Intensity, not polarity or degree, figured in the analysis. Intensity is used because it is assumed to reflect strength of certainty of stand (i.e., internal anchorage) more closely than does degree. Sherif, Sherif,

and Nebergall (1965, p. 58) suggest it is possible to feel strongly committed to any position--neutral or extreme.

Degree items were used to clarify respondent thinking. Respondents seemingly must be forced to decide on the degree of their stand (i.e., how they feel) before they can meaningfully talk about intensity (i.e., how strongly they feel that way).*

In the pre-test item analysis, correlations ran from -.09 to .55, with a median of .20. On cross-validation, correlations ran from .31 to .65, with a median of .49.

Comprehension ability.--A multiple-choice test of ten items got at concepts and relationships in farm policy, marketing, and management. To reduce sensitization, items did not refer to points explicitly discussed in experimental messages.

In drawing up the test, the author gleaned about 75 statements from agricultural texts, farm magazines, farm-policy leaflets, economics journals, and other sources. Items built around these 75 assertions were culled out if:

a. They specifically referred to types of farming not common in Michigan.

b. They appeared extremely difficult or extremely easy. Such items discriminate little.

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*Questionnaire items used to measure attitude degree were 11, 13, 15, 17, 19, and 21. Intensity items were 12, 14, 16, 18, 20, and 22 (see Appendix A).

c. They appeared to concentrate on mastery of jargon (for example, the word "elasticity") rather than concept use. A person might understand and use the elasticity notion without having ever heard of the word "elasticity."

Eighteen items survived initial culling on these criteria and appeared on the pre-test. The ten items which survived item analysis met two criteria:

a. All correlated positively with total test scores. Inter-item correlations were generally low (ranging from -.37 to .19 on the pre-test with a median of .08). However, there appears to be no theoretic or empirical reason for expecting comprehension ability to be unidimensional. The purpose of the test was merely to determine how large a sampling of knowledge of a broad area respondents had.

b. The ten items ranged widely as to difficulty. Such variation helps discriminate at all ability levels (Guilford, 1954, p. 44).

Six of the ten items appearing in the final version had three foils. The other four items had two foils each. Thus, respondents answering strictly at random should have gotten 1/3(6) + 1/2(4) or four items correct.

Items in the final test deal with elasticity of demand (item 23), the law of diminishing returns (items 24 and 25), the implications of diversification and specialization (items

26 and 27), general farm management (items 28, 29, and 32), price fluctuation in agriculture (item 30), and the oft-used concept of parity (item 31). In general, the concepts and principles tapped seemed basic to farming, yet fairly abstract.

See Appendix A for the complete comprehension test.

Manipulated Message Variables

Iconicity.--As explained earlier, the more iconic a symbol, the more it resembles its intended referent. The general types of stimuli used to vary this attribute have been discussed earlier (see p. 18) and will not be reviewed in detail here.

Research results at the University of Wisconsin (Culbertson and Powers, 1951; Sarbaugh, et al., 1961) were used in constructing effective graphic material. Based on the Wisconsin results, labels and numbers were placed right on bars instead of using grids or keys. Also, bar graphs were used rather than line graphs (i.e., "trend" charts found in much economic literature).

In brief, the message used to manipulate iconicity had three parts:

1. A series of statements showing certain quantitative relationships presumed to support paying small-scale, inefficient farmers to leave farming. This content was presented verbally

in the verbal (lowest iconicity) version, graphically in the other versions. This was the experimentally-manipulated part of the message.

2. Verbal statements which explicitly state that, and briefly indicate why, quantities given under #1 above support the "pro" position. These statements remain constant in all experimental treatments.
3. Statements opposing the paying of inefficient farmers. These anti statements, all purely verbal, remain constant in all experimental treatments.

Appendix B shows the complete messages used to manipulate iconicity. Respondents rated the verbal version somewhat negative (-0.6) on a total-score scale ranging from -3 to +3.* This "anti" slant should have helped avoid ceiling effects, which might have wiped out predicted results had the verbal version been "pro" because the predicted direction of influence due to iconicity was toward the +3.

Page 51 shows the symbols used in the three graphic versions.

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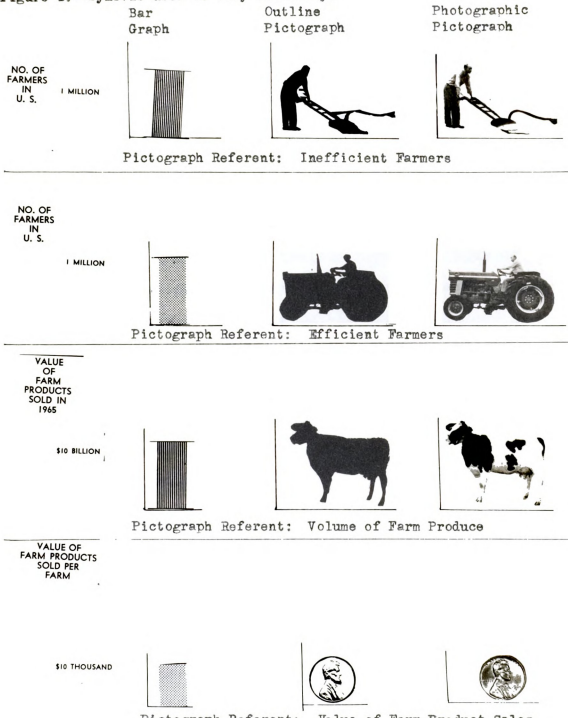
*The author wrote the article with repeated feedback from about 10 graduate students in the MSU Institute for Extension Personnel Development. All agreed the final version was at least somewhat "anti."

Figure 1.--Symbols used to very iconicity.



In the top row, a horse-drawn plow, operated by a farmer, represented small-scale, inefficient farmers. This seemed appropriate because travelogues and magazines often use primitive plows to show backward farming. Such plows, then, should have the intended meaning to many people.

A large, modern tractor symbolized efficient, large-scale farmers (see second row from top on p. 51). The author has noted that size of tractor indicates size of farm to many rural people. Further, virtually every farmer has a tractor. Few other tools of the trade fit into almost all types of Michigan agriculture.

Dairy cattle represented volume of farm production (see second row from bottom). Dairying is found in most parts of the state. It comes as close as any enterprise to dominating Michigan's diversified agriculture.

Pennies were used to show farm income. Most Americans know Lincoln's face appears on the penny. (See bottom row, p. 51.)

Outline pictographs were identical with photographic pictographs as to size and shape. In developing outline symbols, the printer simply blocked out all detail not needed for recognition from photos used in the photographic version.

Contextual relevance.--This variable figured only in the experiment dealing with comparative core-dominance.

As explained earlier, this experiment involved a message with two quantities:

1. A core quantity, the perceived magnitude of which was assumed central to message interpretation.
2. A contextual quantity, which might aid interpretation by serving as a standard of comparison for judging the core quantity.

Contextual relevance is high where:

1. The referent object for the core quantity physically resembles the object for the contextual quantity. For example, dairy cattle resemble beef cattle. On the other hand, dairy cattle do not look much like apples.
2. There is a technical reason to use context as a standard of comparison in assessing the core quantity.

Farm management--a rather distinct discipline within agricultural economics--deals largely with technical reasons for considering one part of a farm business in relation to others. The researcher asked five farm-management specialist at Michigan State to:

1. Help identify enterprises that many Michigan farmers were choosing to adopt or not adopt in the spring of 1966.
2. Indicate how enterprises relate to each other. For example, does adoption of one enterprise

help or hurt chances for adopting the other. A card-sorting task--to be described later--was used to help specialists approach this problem systematically.

Heady and Jensen (1954, p. 130) note that many enterprises compete for resources. In general, a farmer cannot raise both of two enterprises which compete for many of the same resources. Choosing between competing enterprises requires comparison of them to decide which one is best. Assuming hogs and cattle compete, farmers presumably assess cattle by noting how they stand relative to hogs.

The competitive relationship implies a process similar to that postulated by Helson as a general law of perception. High context value (hog income) leads to low perceived core value (beef income). And low context leads to high core.

In farm management, however, judgment seems far more complex than Helson implies. Farm enterprises can relate to each other in several ways other than competition (Heady and Jensen, 1954, pp. 130-54).

First, one enterprise may complement or provide resources used by another. For example, dairy cattle provide manure, which acts as fertilizer for cash crops. Here, dairy cattle complement cash crops.

Second, one enterprise may supplement another. For example, dairy cattle may require a lot of labor in the fall and winter, while wheat demands labor largely in spring and

summer. Dairy cattle and wheat fit well together, since they keep a year-around hired man busy.

Third, two enterprises may be virtually independent of each other. For example, adoption of pulpwood apparently almost never influences the desirability of adopting dairy cattle as seen by most Michigan farmers.

Michigan State University farm management specialists emphasized several points about enterprise relationships.

First, supplementary relations are fairly common--especially in a diversified-farming area like Michigan.

Second, very few of the enterprise-pairs studied appeared completely independent to farm management specialists. However, many pairs designated as supplementary approached independence. For example, pulpwood might supplement beef on a few unusual farms. But on most farms, the two are independent.

Third, highly complementary relations (with one enterprise providing resources for another) are rare except for certain crop-crop relations not covered in this study. In fact, not one farm-management specialist felt a single enterprise-pair among the 36 studied was basically complementary.

In summary, contextual relevance was considered:

1. High were farm-management specialists agreed the two enterprises involved are quite competitive.

2. Low where specialists agreed that competitiveness was low, and/or that a supplementary relationship existed.

In informal discussions, management people indicated that many Michigan farmers are now adopting or discontinuing grade A dairy, beef feeder, and beef cow-calf operations. It was decided to choose the "core" enterprise from among these three.

A total of twelve possible contextual enterprises--all widely grown in certain parts of Michigan--were chosen. Each contextual enterprise was matched with each core enterprise, yielding a total of (3 x 12) or 36 enterprise-pairs for management specialists to assess.

Each enterprise-pair was listed on a single 3 x 5 card (for example, BEEF FEEDER----SWINE). Specialists completed the total card-sorting task in about twenty minutes. The procedure went as follows:

1. The researcher read definitions (see p. 55) of competition, complementarity, supplementarity, and independence. He then asked the specialist to base his assessments on how farmers should behave under current conditions as well as on how they do behave. The researcher mentioned that assessments might be hard, but that specialists should simply give their best estimates.

2. The researcher gave the specialist a packet of twelve cards, each one listing beef cow-calf and one possible contextual enterprise. Then:

   a. The specialist went through the cards, setting aside enterprise-pairs that seemed "more often and more basically complementary than supplementary or competitive."

b. The specialist went through the remaining cards, setting aside those that seemed basically supplementary.

c. The researcher put down eleven yellow cards, each with a number ranging from 0 to 10. No. 10 was labelled "very highly competitive," no. 5 "medium competitive" and no. 0 "independent." Specialists then placed cards (from which complementary and supplementary enterprises had been excluded) in the appropriate piles. When sorting was finished, the researcher collected the cards.

3. Step 2 was repeated with beef feeder cattle as the core enterprise.

4. Step 2 was repeated with grade A dairying as the core enterprise.

Table 1 summarizes the highest and lowest of the 36 mean competitiveness ratings. Also given are variances to indicate agreement among the four specialists who sorted the cards.*

Judges' ratings had standard deviations of less than 2.00 on 20 of the 36 enterprise-pairs studied. Apparently competitiveness was a fairly meaningful dimension to farm-management specialists. However, specialists studied first made several comments suggesting additional questions, which were raised in later interviews.

For one thing, specialists found it hard to judge actual farmer decision-making behavior. At least two said they really didn't know what most farmers are doing--they could talk only about what farmers ought to do under present

*See Appendix E for the mean competitiveness score, along with the variance of ratings assigned by the five specialists, for each of the 36 enterprise-pairs.

TABLE 1.--Summary table--means and variances of ratings on enterprise competitiveness*

	Highest Mean Ratings			Lowest Mean Ratings		
		Mean	Variance		Mean	Variance
Dairy Gd. A	Dairy (mfd)	9.75	0.19	Pulpwood	0.00	0.00
	Beef feeder	9.50	0.25	Sugar beets	3.00	5.50
	Sheep	7.50	0.75	Peaches	3.25	9.69
	Laying hens	7.50	1.25	Cherries	3.25	9.69
	Beef cow-calf	7.75	3.19			
Beef cow-calf	Sheep	9.67	0.13	Pulpwood	0.00	3.00
	Dairy Gd A	7.75	3.19	Cash crop	1.00	3.00
	Dairy (mfd)	7.25	2.19	Peaches	1.25	4.69
				Apples	1.25	4.69
				Cherries	1.25	4.69
Beef feeder	Dairy Gd A	9.50	0.25	Pulpwood	0.00	0.00
	Dairy (mfd)	8.00	2.00	Sugar beets	0.00	0.00
	Broilers	7.75	2.19	Cherries	1.75	3.19
	Turkeys	7.75	2.19	Peaches	1.75	3.19
	Sheep	7.75	5.19	Apples	2.50	6.75

*All five specialists judged each enterprise-pair. A "supplementary" rating was scored as 0 on competitiveness. This was done because, as noted earlier, judges felt most enterprise-pairs designated as supplementary were really independent on many if not most farms.

conditions. One said it seemed almost impossible to separate judgments of what farmers are doing from judgments of what farmers ought to do.

Second, one specialist felt competitiveness really includes two aspects: (a) frequency with which the two enterprises are considered together, and (b) degree of competitiveness in cases where the two enterprises are considered together. One specialist said he could judge only on degree, not frequency.

Third, it is extremely difficult to make general state-wide assessments of enterprise relationships because these relationships vary from farm to farm and area to area.

It seemed wise, in light of all these reactions, to make sure enterprises compete often in practice rather than occasionally or just in theory. To get at this, three specialists were asked:

> Think of a farmer with whom you've worked who faces an enterprise decision (that is, a decision on whether to emphasize one enterprise or go to another). What, in your judgment, are the feasible alternatives this farmer must choose between? How many other farmers that you know face a similar kind of choice? And what are some factors influencing his likely choice?

All three specialists who responded to this question felt the most common enterprise choices in Michigan centered around four enterprises--grade A dairy, cash crops, beef feeder, and swine. In short, these four enterprises seemed related to each other in practice as well as in theory.

Choice of core enterprise: Feeding beef cattle was chosen as the core enterprise for two reasons.

First, beef feeder operations are on the increase in Michigan. Many farmers who know little about beef cattle are considering adoption of them. "I want out of dairy, so where do I go now?," many farmers are saying. Beef, not dairying, is the uncertain, new alternative that's being assessed (albeit, presumably, often with one's present dairy operation as a standard of comparison).

Second, several enterprises are almost independent of beef feeding (see Table 1). In contrast, only one enterprise (pulpwood) approached an independent relationship with grade A dairying. Independence is essential to obtain a low-relevant contextual enterprise.

Choice of high-relevant contextual enterprise: Grade A dairying was chosen. Specialists agreed almost unanimously that beef-feeding and Grade A dairying are highly competitive in Michigan today (see Table 1). Further questioning (see p. 59) showed these enterprises are competing in actual practice, not just in "theory" (i.e., based purely on resources demanded and contributed by each enterprise in a hypothetical case).

Choice of low-relevant contextual enterprise: Tree fruits represented a rather homogeneous set of enterprises (cherries, peaches, and apples) as viewed by farm

management specialists. All were generally quite independent of livestock enterprises.

Earlier, relevance was said to depend on enterprise similarity as well as competitiveness. Beef cattle seem to physically resemble other livestock like dairy cattle more than they resemble low-competitive enterprises like tree fruits. Hence, using dairy cattle and a tree fruit as contextual enterprises should satisfy both aspects of relevance.

Peaches were chosen because:

a. They were rated more nearly independent of beef-feeding than were apples (see Table 1). Mean competitiveness score was 1.75 for peaches, 2.50 for apples.

b. They are less localized than cherries, hence less apt to lead to a feeling of incredulity when mentioned in the same breath with beef-feeding. Cherries are concentrated in western Michigan--not generally a strong beef-feeding area.

Comparative core-dominance.--As noted earlier, this variable involves two quantities:

1. A core quantity, the perceived magnitude of which might influence the interpretation given an article.

2. A contextual quantity, which might serve as a standard of comparison in assessing core.

Core-dominance was varied by manipulating context. High core-dominance requires small contextual quantities so the core will look large by comparison. In contrast, low core-dominance implies relatively large contextual quantities.

Core quantities themselves were identical in the high, medium, and low core-dominance messages. Such identity makes it possible to attribute variation in perceived stand to core-context relationship rather than to core quantities alone.

Choice of quantity to be shown in message: Management specialists were asked to name a quantity that seemed especially important in assessing enterprises. Some stressed investment and input. But most said it's income that counts most. As one specialist put it, farmers are in business to make money.

Net income was chosen because:

a. It is simple. Fewer kinds of expense are involved in calculating it than in computing labor income--another oft-cited measure of farm returns.

b. It seems to have values quite comparable to the non-farmer's annual earnings. Labor income tends to run below $5,000 even on prosperous, large-scale

farms. This may seem low to a person not familiar with farm management--a perception that could have influenced results in the present study if labor income had been used.

Three levels of comparative core-dominance were used to allow a check on linearity. Data from Michigan State University farm account operators suggested a good beef-feeder might achieve a $7,000 net income, even with a fairly modest-sized operation.

The precise core quantity used was $7,000 net income for beef. Context values were $4,000 in the high core-dominance condition, $7,000 in the medium core-dominance treatment, and $10,000 with low core-dominance. Table 2 summarizes these manipulations.

Table 2.--Contextual enterprises, and estimated incomes from them used to manipulate comparative core-dominance and contextual relevance.*

	Contextual Enterprise	Core-Dominance (Income for Context Enterprise)		
		High	Medium	Low
High Contextual Relevance	Grade A Dairy	$4,000	$7,000	$10,000
Low Contextual Relevance	Peaches	$4,000	$7,000	$10,000

*Figures in the table show the estimated income for the contextual enterprise in each of the six versions. In each version, a $7,000 income was estimated for a herd of beef feeder cattle. (See Appendex C for the six complete articles.)

Message construction: Any enterprise choice depends on far more than income. As one farm-management specialist put it, drastic over-simplification might make farmers say only that it "all depends."

Three steps were taken to avoid such a reaction.

First, the article did not deal with a specific farm situation in all its vast complexity. Rather, readers were asked to assume the message came from a county agent trying to decide how strongly to advocate beef cattle "in general" within his county.

Second, the article discussed several factors other than income. Three positive points were indicated (beef cattle are on the increase in Michigan, they save labor, and they make good use of various forage crops). Three negative points were also mentioned (investment can be high, risk is high, and beef marketing takes much experience and patience that the new beef-feeder often lacks). Income, it was felt, should often "swing the balance" between these two sets of factors.

Respondents were asked to assume all information in the article was correct. This, it was hoped, would reduce any tendency to discount figures as incredulous. Instructions were as follows:

> In interpreting the article, please assume all information given is correct. Most of it seems reasonable, but a few points are hard to pin down exactly. We'd like you to interpret the article given the figures indicated are correct.

Test Administration

Order and Timing

Most respondents completed the questionnaire in about 30 to 40 minutes. The experimenter could see little evidence of fatigue. Also, none of the groups tested seemed reluctant to contribute a half-hour of meeting time. There were some comments that a longer test might have created resistance.

The experimenter first took about two minutes to explain mechanics. He asked respondents to read directions carefully, answer each question and work alone. He explained that results were confidential, and that the study dealt mainly with opinions rather than with ability or intelligence.

The researcher handed out questionnaires systematically. Moving around the meeting room, one respondent would get a verbal version, the second a bar graph version, the third an outline pictograph, . . . and so on. At the next meeting tested, the researcher began by handing out a bar-graph version first. He started with an outline pictograph at the third meeting. And so on. Core-dominance messages were handled similarly.

Respondents proceeded in the following order:

1. They completed attitude degree and intensity items on paying small-scale, inefficient farmers--the issue used to test iconicity effects.

2. They completed the comprehension test.
3. They read the two-sided message on paying small-scale farmers.
4. They gave responses needed to measure the source's perceived attitude on the message topic and certainty of the stand they attributed to the source.
5. They read the message on beef cattle used to study comparative core-dominance.
6. They answered questions used to measure perceived writer attitude toward beef cattle and the certainty of their attributed stand.
7. They answered questions on education, sex, and occupation (full-time farmer, non-farmer, retired farmer, part-time farmer, etc.).

To clarify causal direction, respondents completed attitude-intensity items (step 1 above) before rating experimental messages (steps 3 and 4). That is important because the study seeks to check how attitude intensity before exposure to a message influences assessment of that message's stand. Troldahl, et al. (1965) recently found evidence suggesting it is important to consider time order. In their study, messages influenced attitude intensity.

The comprehension test came between attitude intensity and stand-attribution responses. This was done to reduce any set resulting from indicating one's own attitude which might influence message-stand attribution.

In most of the 20 intact groups tested, the experimenter briefly discussed the study's purpose after all respondents were done. He also stated the articles were strictly experimental and were not intended as propaganda.

Almost everyone in the groups answered all questions. Five grossly incomplete questionnaires were discarded. Three of these came from elderly men in one Grange meeting, two from vocational agriculture students.

The author administered the questionnaire to 17 of the 20 groups tested. Three graduate students in the Michigan State University Department of Communication handled the other groups. All three students were briefed thoroughly in advance on the study's goals and on problems encountered in earlier test sessions.

The ten Michigan State University seniors studied volunteered when the author visited a course they were taking in agricultural finance. These respondents came to the researcher's office individually and in small groups to complete the questionnaire.

The author contacted state and county Farm Bureau officials before arranging meetings with neighborhood discussion groups. This contact helped insure cooperation at the local level (the author mentioned to local groups that the study had state and county approval).

Design and Statistical Analysis

Following are dummy tables with fictitious numbers inserted to clarify relationships specified by each hypothesis.

Hyp. 1--The higher a message component's iconicity, the more often a reader will see the writer of the total message as agreeing with the viewpoint expressed in the iconic component, especially when the reader has a low-intense attitude on the issue.

Hyp. 2--The higher the iconicity of components within a message, the more certain a reader will be of the stand he attributes to that message, especially when he has a low-intense attitude on the issue in question.

	Iconicity			
	LOW Verbal	Bar Graph	Outline Pictograph	HIGH Photographic Pictograph
Attitude Intensity Hi	0	2	4	6
Attitude Intensity Lo	0	5	10	15

This table represents hypothesis 1 where perceived source attitude is the dependent variable, hypothesis 2 where certainty of attributed stand is the dependent variable.

The iconicity main effect and interaction effect were tested for significance. A significant interaction effect was hypothesized.

Hyp. 3--The higher a message component's iconicity, the more often a reader will see the writer of the total message as agreeing with the viewpoint expressed in the iconic component, especially when he has low ability to comprehend the message.

Hyp. 4--The higher the iconicity of components within a message, the more certain a reader will be of the stand he attributes to that message, especially when he has low ability to comprehend the message.

	Iconicity			
	LOW Verbal	Bar Graph	Outline Pictograph	HIGH Photographic Pictograph
Comprehension Ability: Hi	0	2	4	6
Comprehension Ability: Lo	0	5	10	15

This table represents hypothesis 3 when perceived source attitude is the dependent variable, hypothesis 4 when certainty of attributed stand is the dependent variable.

The iconicity main effect and interaction effect were both tested for significance. A significant interaction effect was hypothesized.

Hypotheses 5-10, with comparative core-dominance as the independent variable, can be represented in three tables.

Hyp. 5--The higher a message's comparative core-dominance, the more often a reader will perceive the writer of that message as agreeing with the "core" topic, especially where contextual content is relevant to assessment of the "core" topic.

Hyp. 6--The higher a message's comparative core-dominance, the more certain a reader will be of the stand he attributes to that message, especially where contextual content is relevant to assessment of the "core" topic.

Core-dominance

	Lo	Medium	Hi
Hi	5	10	15
Contextual Relevance			
Lo	9	10	11

This table represents hypothesis 5 with perceived source attitude on topic as the dependent variable, hypothesis 6 with certainty of attributed stand as the dependent variable.

The core-dominance main effect and the interaction effect were both tested for significance. A significant interaction effect was hypothesized.

Hyp. 7--Given high contextual relevance, the higher a message's comparative core-dominance, the more often a reader will perceive the writer of the message as agreeing with the "core" topic, especially where he has high ability to comprehend the message.

Hyp. 8--Given high contextual relevance, the higher a message's comparative core-dominance, the more certain a reader will be of the stand he attributes to that message, especially where he has high ability to comprehend the message.

		Core-dominance		
		Lo	Medium	Hi
Comprehension Ability	Hi	1	10	19
	Lo	9	10	11

Note that this table applies only to messages in which context is defined by economists as highly relevant in assessing core content. The table represents hypothesis 7 with writer attitude as the dependent variable, hypothesis 8 with certainty of attributed stand as the dependent variable.

The main effect and the interaction effect were both tested for significance. A significant interaction is hypothesized.

Hyp. 9--Given low contextual relevance, the higher a message's comparative core-dominance, the more often a reader will perceive the writer of the message as agreeing with the "core" topic, especially where he has low ability to comprehend the message.

Hyp. 10-Given low contextual relevance, the higher a message's comparative core-dominance, the more certain a reader will be of the stand he attributes to that message, especially where he has low ability to comprehend the message.

Comprehension Ability	Core-dominance: Lo	Medium	Hi
Hi	8	8.5	9
Lo	10	11.5	13

Note that this table applies only to messages in which context is of low relevance in assessing core content. The table represents hypothesis 9 with writer attitude toward core stand as the dependent variable, hypothesis 10 with certainty of attributed stand as the dependent variable.

The main effect and the interaction effect were both tested for significance. A significant interaction effect is hypothesized.

Statistical Analysis

One basic design--a two-way factorial analysis of variance--was used throughout the study. McNemar (1963, p. 332) notes that the within-cells mean square is the appropriate error term for such a design. Complete equality and proportionality of cell n's was not attained, so the approximation proposed by Walker and Lev (1953, pp. 281-82) was used.

CHAPTER III

FINDINGS

Description of Sample

Table 3 gives descriptive information on the total sample as well as on each of the four types of groups studied.

County directors head the varied political and business activities of the county Farm Bureau, while local discussion groups tend to be primarily social. One might expect that the directors--being leaders--would exceed discussion group members in educational attainment. Table 3 suggests a slight tendency in that direction, but the difference does not approach statistical significance ($X^2 = 2.4$, 2df, $P > .05$).

The four broad classes of respondents did differ significantly on comprehension ability ($F = 7.5$; $P < .05$). As might be expected, agricultural economics students scored highest ($\overline{X} = 6.7$ compared to 5.4 for Farm Bureau and Grange members and only 4.4 for high school students). The ten college students' high scores seem to tentatively

TABLE 3.--Description of sample on education, occupation, comprehension ability, and attitude toward paying small-scale farmers to quit farming.

Personal Characteristic	Local Discussion Groups	County Farm Bureau Boards	High School Vocational Agricultural Students	Mich.State Univ. Agricultural Economic Students	Total Sample
Education					
8 years or less	12%	12%			7%
Some high school	18	10	100%		42
High school grads	44	38			26
Some college	18	26		100%	16
College diploma	5	10			5
More than 4 years college	4	5			4
	101%	101%	100%	100%	100%
	N=78	N=42	N=63	N=10	N=193
Occupation					
Full-time farmer	54%	64%			36%
Part-time farmer	18	26			13
Retired farmer	13	10			7
Non-farmer	15	0			6
High school student	0	0	100%		33
College student	0	0		100%	5
	100%	100%	100%	100%	100%
Comprehension Ability Score of:					
7-10	22%	29%	15%	70%	24%
4- 6	61	59	50	30	56
0- 3	17	12	35	0	22
	100%	100%	100%	100%	102%
	X=5.3	X=5.5	X=4.4	X=6.7	X=5.1
Attitude (paying small-scale farmers)					
-1 to -6	5%	4%	20%	50%	12%
0	0	0	5	0	2
1 to 6	95	96	75	50	85
	X=-3.8	X=-4.1	X=+0.8	X=-1.7	X=-3.0

confirm that the test was tapping concepts taught in agricultural economics.*

The groups also differed in their views on paying small-scale farmers to quit farming ($F = 12.0$; $P < .05$).

Farm Bureau groups opposed the idea strongly, averaging about -4 on a scale running from -6 to +6. This does not seem surprising in view of the organization's frequent opposition to such government programs.

Michigan State University agricultural economics students, on the other hand, seemed to take a neutral or slightly positive stand ($\bar{X} = + 0.8$) on the proposal. School-related experience may have made students willing to give the idea a try. Of course, the small number of college students ($n = 10$) makes the result highly tentative.**

High school students tended to oppose the proposal ($\bar{X} = -1.7$), but not as strongly or unanimously as the Farm Bureau groups did.

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*The college students significantly exceeded all three other groups combined, based on the Scheffe test (see McNemar, 1963, pp. 285-86). $D'/S_{D'} = 3.07$ ($P < .05$; 2-alternative).

**Because of the small number of collegians, it is not possible to estimate their mean population attitude precisely. However, using the Scheffe test (see McNemar, 1963, pp. 285-86), it is possible to make certain statements at the .05 confidence level:

1. The college students do have more favorable attitudes than all other groups combined ($D'/S_{D'} = 3.98$; $P < .05$, 2-alternative).
2. The high school students take a more favorable view toward paying small-scale farmers than do either the Farm Bureau Board members ($D/S_D = 3.94$; $P < .05$, 2-alternative) or the Farm Bureau and Grange discussion group members ($D/S_D = 3.81$; $P < .05$, 2-alternative).

It is possible to check the sample against Michigan's total population on one variable--level of education. Table 4 provides such a comparison.

Table 4.--Comparability of the sample with Michigan's 1960 population as to educational achievement.

	Total Sample (N = 193)	Sample Excluding High School and College Students (N = 120)	Michigan Population, 1960 (Includes Everyone 25 and Older)
Education:			
8 yrs or less	7%	12%	37%
Some high school	42	16	22
High school diploma	26	42	26
Some college	16	17	8
College degree	9	14	7

Only 28 percent of the 120 non-students in the sample had failed to finish high school, compared to 59 percent of the state's 1960 population 25 and older. And at the other extreme, 31 percent of the 120 non-students had completed at least some college, compared to only 15 percent of the state's population. The non-student sample differed significantly from the total population (X^2 = 51, 5 df, $P < .05$, 2-alternative test).

Looking at the total sample of 193, the 63 vocational agriculture students help account for the large number of people (42 percent of the sample) with only "some high school." However, one-fourth of the sample members had some college training compared to 15 percent for the population as a whole. Once again, the sample differs significantly from the population (X^2 = 87, 5df; P < .05, 2-alternative test).

The population's educational achievement has doubtless improved slightly since 1960. However, it seems safe to conclude that the present sample runs well above average. This holds whether one looks at the total sample or at only the 120 non-students.

To summarize, the four types of respondents do differ on at least two variables--comprehension ability and attitude toward paying small-scale farmers to quit farming. The next section will include a check on whether such differences might contaminate results.

Comparability of Treatment Groups

Random allocation of persons to treatments should make the treatment groups resemble each other. An attempt was made to approach random procedures in this study (see p. 65). However, very dissimilar groups could be obtained by chance. Therefore, a check was made on group comparability.

Iconicity experiment.--Groups were compared on education, occupation, proportion of respondents from each of the four types of groups studied, attitude toward paying small-scale farmers to quit, and comprehension ability. Table 5 summarizes this descriptive information.

The groups did not differ by an amount approaching statistical significance on any of the five variables.* Thus it seems safe to conclude the randomization process worked effectively.

Core-dominance experiment.--Six message versions were used to manipulate comparative core-dominance and contextual relevance. The six groups were compared on education, occupation, proportion of respondents from each type of group, and comprehension ability.

Table 6 summarizes this information. Once again, there are no striking or statistically significant differences.** Therefore it seems safe to conclude that randomization worked quite well. The treatment groups were quite similar to each other.

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*In Table 5, comparing iconicity treatment groups, the following statistics were computed: education (chi-square = 2.7, 6 df; $P > .05$); occupation (chi-square = 5.3, 6 df; $P > .05$); type of farm group (chi-square = 8.7, 6 df; $P > .05$); comprehension ability ($F = 0.10$; $P > .05$); and attitude degree ($F = 1.2$; $P > .05$).

**In Table 6, comparing treatment groups in the core-dominance experiment, the following statistics were computed: education (chi-square = 6.5, 10 df; $P > .05$); occupation (chi-square = 10.4, 10 df; $P > .05$); type of farm group (chi-square = 8.0, 10 df; $P > .05$); and comprehension ability ($F = 0.6$; $P > .05$).

TABLE 5.--Comparability of iconicity treatment groups on education, occupation, type of farm group studies, comprehension ability, and attitude toward paying small-scale farmers to quit farming.

Personal Characteristic	Verbal Group	Bar Graph Group	Outline Pictograph Group	Photographic Pictograph Group
Education				
8 years or less	6%	10%	8%	4%
Some high school	42	47	37	43
High school diploma	29	24	23	28
Some college	19	12	17	15
College degree	2	6	10	2
More than 4 years college	2	2	4	7
	100% N=48	100% N=51	99% N=48	99% N=46
Occupation				
College student	2%	10%	6%	2%
High school student	33	35	29	33
Full-time farmer	31	31	40	41
Part-time farmer	21	14	4	15
Retired farmer	4	6	12	4
Non-farmer	8	4	8	4
	99%	100%	99%	99%
Type of Farm Group				
Local Farm Bureau and Grange discussion group	46%	35%	42%	39%
County Farm Bureau Board of Directors	19	20	23	26
High school students	33	35	29	33
College students	2	10	6	2
	100%	100%	100%	100%
Attitude (paying small-scale farmers to quit farming) Scores from:				
-6 (extremely anti) to +6 (extremely pro)	$\bar{X}$=-2.3	$\bar{X}$=-3.0	$\bar{X}$=-3.0	$\bar{X}$=-3.6
Variance=	11.8	12.3	12.2	7.7
Comprehension Ability Scores range from:	$\bar{X}$= 5.0	$\bar{X}$= 5.2	$\bar{X}$= 5.1	$\bar{X}$= 5.0
0 to 10 Variance=	2.5	3.2	2.3	4.6

TABLE 6.--Comparability of core-dominance and contextual relevance treatment groups on education, occupation, type of farm group studied, and comprehension ability.

Personal Characteristic	Low Core-dom. Low Relevance	Low Core-dom. High Rel.	Med. Core-dom. Low Relevance	Med. Core-dom. High Rel.	High Core-dom. Low Relevance	High Core-dom. High Rel.
Education:						
8 years or less	0%	10%	3%	13%	10%	9%
Some high school	53	32	44	35	45	44
High school grads	35	29	24	30	20	19
Some college	12	23	21	10	20	9
College degree	0	6	0	10	6	9
More than 4 yr. college	0	0	9	3	0	9
	100%	100%	101%	101%	101%	99%
	N=34	N=31	N=34	N=31	N=31	N=32
Occupation:						
College student	3%	0%	6%	6%	10%	6%
High school student	35	26	29	23	45	38
Full-time farmer	41	48	35	42	23	25
Part-time farmer	12	13	15	6	10	25
Retired farmer	3	13	6	10	10	0
Non-farmer	6	0	9	13	3	6
	100%	100%	100%	100%	101%	100%
Type of Farm Group:						
Local discussion group	44%	45%	38%	48%	26%	41%
County Farm Bureau Board of Directors	18	29	26	23	19	16
College students	3	0	6	6	10	6
High school students	35	26	29	23	45	38
	100%	100%	99%	100%	100%	101%
Comprehension Ability:						
Scores range from 0 to 10	$\bar{X}$=5.1	$\bar{X}$=5.0	$\bar{X}$=5.0	$\bar{X}$=4.9	$\bar{X}$=5.0	$\bar{X}$=5.7
Variance=	2.4	2.5	4.0	2.7	4.4	2.6

Tests of Hypotheses

Effects of Iconicity

The first four hypotheses deal with the effects of iconicity of a message element on perceived attitude source attitude toward a topic (hypotheses one and three) and on certainty of stand attributed to that message (hypotheses two and four).

Hypothesis one, like all others, includes two facets.

First, increasing a message segment's iconicity should boost the weight given to the direction of attitude that portion advocates when judging the stand of the writer. This should hold because iconicity is expected to aid comprehension, and because it should add attention-getting value.

Second, iconicity's influence on the perceived writer's attitude should be especially marked where respondents have low-intense attitudes on the topic discussed. This derives from the belief that low-intense attitudes, implying a lack of "internal" anchorage, should allow external factors such as physical properties of the message to greatly influence perception.

Neither the hypothesized iconicity main effect nor the interaction effect approached significance (see Table 7).

Despite the lack of overall significance, the a priori rationales for each of three types of iconicity

TABLE 7.--Average (mean) perceived writer attitude on topic with different iconicity levels, by attitude intensity groups.

	Iconicity			
	Verbal	Bar Graph	Outline Pictograph	Photographic Pictograph
High Attitude intensity (15-18)	-0.5	-0.5	-0.8	-0.2
Low Attitude intensity (0-14)	-0.5	-0.8	-0.6	-0.2
	-0.5	-0.7	-0.7	-0.2
Sample Size:	24	26	24	22
	24	25	24	24
	48	51	48	46

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between iconicity levels	.3103	3	.1034	0.69	2.66
Between intensity levels	.0161	1	.0161	0.10	3.90
Interaction: Iconicity x Intensity	.0548	3	.0183	0.12	2.66
Within cells		185	.1507		

(magnitude, shape, and detail) makes selected comparisons of certain pairs of means legitimate. Specifically:

1. A difference between the verbal and bar graph versions could be attributed to iconicity of magnitude.
2. Any difference between the bar graph and outline pictograph versions would reflect the influence of iconicity of shape.
3. The comparison between the outline pictograph and the photographic pictograph focuses on iconicity of detail.

Table 7 shows that the overall mean "perceived-writer-attitude" scores are -0.5 for the verbal version, -0.7 with a bar graph, -0.7 with an outline pictograph and -0.2 for the photographic pictograph. No two means differed by as much as the roughly .75 units on the 7-point scale required for statistical significance.

It is also appropriate to test the interaction between selected types of iconicity (magnitude, shape, and detail) and attitude intensity, using the t-test of interaction suggested by Lindquist (1953, p. 15). However, no interaction effect approaches significance.

Hypothesis two also includes two aspects. Increased iconicity should raise certainty of attributed stand. This should occur because iconicity makes the message more clear and emphatic, and perhaps more one-sided. And

secondly, iconicity's effect on certainty of attributed stand should be especially marked among respondents with low-intense attitudes (hence, low "internal anchorage") on the topic discussed.

In Table 8, average certainty of attributed stand runs highest with the low-iconic versions--the reverse of what had been predicted. Mean scores range from 12.7 in the verbal version to 11.7 for the photographic pictograph version. This tendency, however, does not approach statistical significance.

Here, as with hypothesis one, the distinct rationale for each of the three types of iconicity (magnitude, shape, and detail) makes selected comparisons of certain pairs of means (verbal with bar graph, bar graph with outline pictograph, and outline pictograph with photographic pictograph) legitimate.

No pair of "certainty" means differ from each other by as much as the at least 1.36 scale units required for significance. Thus, no difference in certainty of attributed stand can be attributed to any particular type of iconicity.

It is also appropriate to check the interaction between specific types of iconicity and attitude intensity, Once again, however, no interactions approach significance.

Regardless of message version, readers with highly intense attitudes tended to be highly certain of stands attributed to the message author. Certainty of attributed

TABLE 8.--Average (mean) certainty of attributed stand with different iconicity levels, by attitude intensity groups.

	Message Form			
	Verbal	Bar Graph	Outline Pictograph	Photographic Pictograph
High intensity (15-18)	13.5	14.0	13.0	13.1
Low intensity (0-14)	11.9	11.0	11.1	10.2
	12.7	12.5	12.0	11.7
Sample Size:	24	26	24	24
	24	25	24	22
	48	51	48	46

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between iconicity levels	1.2942	3	0.4314	0.87	2.66
Between intensity levels	10.7511	1	10.7511	21.72*	3.90
Interaction: Iconcity x Intensity	0.7657	3	0.2552	0.52	2.66
Within cells		185	0.4950		

stand averaged 13.4 with respondents holding highly intense attitudes, 10.8 with holders of low-intense views. This difference was significant (see Table 8). The finding represents but one of three correlations between certainty of attributed stand and attitude intensity to be discussed later.

Hypothesis three suggests the positive correlation between iconicity and the perceived writer's stand noted earlier should be especially marked where the reader has low comprehension ability. The data fail to confirm this hypothesis (see Table 9).

A look at the means in Table 9 suggests some tendency for an interaction between iconicity of detail and comprehension level. Specifically:

1. Respondents of low ability appeared to be influenced more by the experimental portion where that portion included a photographic pictograph (mean writer attitude = 0.0) than where the portion included an outline pictograph (mean = -1.0).
2. Respondents of high ability appeared to be influenced by the experimental portion about as much when that portion included an outline pictograph (mean = -0.3) as when it included a photographic pictograph (mean = -0.4).

However, the interaction between iconicity of detail and comprehension ability failed to reach statistical

TABLE 9.--Average (mean) perceived writer attitude on topic with different iconicity levels, by comprehension ability groups.

	Iconicity			
	Verbal	Bar Graph	Outline Pictograph	Photographic Pictograph
High comprehension ability (6-10)	-0.3	-0.6	-0.3	-0.4
Low comprehension ability (0-5)	-0.7	-0.8	-1.0	0.0
	-0.5	-0.7	-0.7	-0.2
Sample Size:	23	24	21	21
	25	27	27	25
	48	51	48	46

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between iconicity levels	.2566	3	.0855	.57	2.66
Between comprehension levels	.0838	1	.0838	.56	3.90
Interaction: Iconicity x Ability	.3461	3	.1154	.77	2.66
Within cells		185	.1498		

significance ($t = 1.46$; $P > .05$; 2-alternative). Also, the observed interaction between iconicity of magnitude and comprehension ability failed to reach significance. So did that between iconicity of shape and ability.

Hypothesis four indicates the suggested positive correlation between iconicity and certainty of attributed stand should be most pronounced where readers have low ability. Data in Table 10 fail to confirm this hypothesis.

Further, there is no apparent interaction between comprehension level and any one of the three types of iconicity. None of the three tests of interaction (one dealing with iconicity of magnitude, one with iconicity of shape, and one with iconicity of detail) yield significant results.

In summary, none of the four hypotheses on iconicity find support. Possible reasons for this lack of success in prediction will be suggested in Chapter IV.

Effects of Comparative Core-dominance

As noted in Chapter II (see p. 43), the five-item index on writer attitude toward the "core" topic did not hold together very well on cross-validation. Results from the index will be reported, though findings must be regarded as somewhat tentative pending further confirmation.

Hypotheses 5-10 deal with the effects of comparative core-dominance on perceived writer attitude toward "core" topic and on the certainty with which readers attribute that attitude to the writer.

TABLE 10.--Average (mean) certainty of attributed stand with different iconicity levels, by comprehension ability groups.

	Message Form			
	Verbal	Bar Graph	Outline Pictograph	Photographic Pictograph
High ability (6-10)	12.0	12.5	11.6	11.2
Low ability (0-5)	13.3	12.5	12.2	12.2
	12.7	12.5	12.0	11.7
Sample Size:	23 25	24 27	21 27	21 25
	48	51	48	46

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between iconicity levels	1.6779	3	0.5593	1.01	2.66
Between ability levels	1.3017	1	1.3017	2.35	3.90
Interaction: Iconicity x Ability	0.4827	3	0.1609	0.29	2.66
Within cells		185	0.5542		

All hypotheses specify a core-dominance main effect (the higher the core-dominance, the higher the writer attitude toward the "core" topic and the certainty of attributed stand). Interaction effects were also tested.

Hypothesis five states that perceived writer attitude toward the "core" topic will increase as core-dominance goes up (see Table 11). Also, this effect will be more pronounced where the context is highly relevant (dairy cattle income) than where it is of low relevance (income from raising peaches).

There is a significant core-dominance by contextual relevance interaction as predicted, but no main effect. The interaction apparently stems from two tendencies:

1. Where relevance is high, writer attitude toward the "core" topic stayed about the same in moving from low to medium core-dominance. Then perceived writer attitude increased from medium to high core-dominance.*
2. Where contextual relevance was low, perceived writer attitude toward the topic appeared to go down as core-dominance increased. This

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*As reported in connection with hypothesis 7, the low, medium, and high core-dominance means did differ significantly where relevance was high ($F = 5.10$; $P < .05$; 2-alternative). The difference between high and medium core-dominance means was also significant (using the Scheffe test, $t = 3.41 > K = 2.85$; $P < .05$; 2-alternative).

TABLE 11.--Average (mean) perceived writer attitude toward "core" topic with different core-dominance values, by contextual relevance levels.

	Core-Dominance		
	Low	Medium	High
High contextual relevance	1.7	1.2	2.8
Low contextual relevance	1.8	1.5	0.8
	1.8	1.4	1.8
Sample Size:	31 34	31 34	32 31
	65	65	63

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	.2451	2	.1226	.98	3.05
Between relevance levels	.4363	1	.4363	3.47	3.90
Interaction: Core-dominance x Contextual Relevance	1.6337	2	.8168	6.51*	3.05
Within cells		187	.1256		

tendency was opposite to the one predicted, but it did not reach statistical significance ($F = 1.74$; $P > .05$).

Hypothesis six specifies that, the higher the core-dominance, the more certain readers will be of the writer's stand. Further, this tendency should be more marked with high-relevant context (dairy) than with low-relevant context (peaches).

Mean certainty scores stayed about the same in moving from low to medium core-dominance. Then certainty increased slightly (from 10.9 to 11.4) in going from medium to high core-dominance. While it paralleled the result found with perceived writer attitude as the dependent variable; this tendency does not reach significance. (See Table 12).

Effects of comprehension level with high-relevant context.--Hypothesis seven specifies that, given high contextual relevance, core-dominance should influence perceived writer attitude toward the "core" topic most where readers have high comprehension ability. This stems from the belief that highly able persons should often "take advantage" of highly relevant context.

The hypothesized interaction effect (core-dominance x comprehension level) did not approach significance (see Table 13).

The core-dominance main effect did reach significance. Overall significance makes it legitimate to

TABLE 12.--Average (mean) certainty of attributed writer stand with different core-dominance values, by contextual relevance levels.

	Core-Dominance		
	Low	Medium	High
High contextual relevance	10.9	10.9	11.9
Low contextual relevance	11.1	11.0	10.8
	11.0	10.9	11.4
Sample Size:	31	31	32
	34	34	31
	65	65	63

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	.2093	2	.1046	.48	3.05
Between relevance levels	.0668	1	.0668	.31	3.90
Interaction: Core-dominance x Relevance	.8298	2	.4149	1.91	3.05
Within cells		187	.2170		

TABLE 13.--Average (mean) perceived writer attitude toward "core" topic with different core-dominance values, by comprehension ability groups, where contextual relevance is high.

	Core-Dominance		
	Low	Medium	High
High comprehension ability (6-10)	2.0	1.6	2.9
Low comprehension ability (0-5)	1.6	0.9	2.7
	1.7	1.2	2.8
Sample Size:	12	12	19
	19	19	13
	31	31	32

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	2.4121	2	1.2061	5.10*	3.10
Between comprehension ability levels	0.2644	1	0.2644	1.11	3.95
Interaction: Core-dominance x Comprehension ability	0.0469	2	0.0234	0.10	3.10
Within cells		88	0.2365		

compare one particular mean with another, using the Scheffe test summarized by McNemar (1963, pp. 285-86). Results were as follows:

1. The medium and low core-dominance means do not differ significantly ($t = 1.07 < K = 2.85$; $P > .05$; 2-alternative).
2. The low and high core-dominance means do not differ significantly ($t = 2.26 < K = 2.85$; $P > .05$; 2-alternative).
3. The high core-dominance mean (2.8) does significantly exceed medium core-dominance (mean = 1.2) ($t = 3.41 > K = 2.85$; $P < .05$; 2-alternative).

In summary, perceived writer attitude did not change demonstrably in moving from low to medium core-dominance. Perceived writer favorability toward the core stand did go up, however, from medium to high core-dominance.

Hypothesis eight states the tendency for certainty of attributed stand to increase as core-dominance goes up should prove most marked with highly-able readers, given high relevance. A look at the means (Table 14) suggests that the tendency for certainty to increase in moving from medium to high core-dominance seems especially marked with highly-able repondents. However, the overall F-test reveals neither a significant main effect nor an interaction (see Table 14).

TABLE 14.--Average (mean) certainty of attributed writer stand with different core-dominance values, by comprehension ability levels, where contextual relevance is high.

	Core-Dominance		
	Low	Medium	High
High comprehension ability (6-10)	10.8	10.6	12.6
Low comprehension ability	11.0	11.1	10.9
	11.0	10.9	11.4
Sample Size:	12	12	19
	19	19	13
	31	31	32

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	1.1238	2	0.5619	1.30	3.10
Between comprehension ability levels	0.1631	1	0.1631	0.38	3.95
Interaction: Core-dominance x ability	1.3374	2	0.6687	1.55	3.10
Within cells		88	0.4323		

Effects of comprehension level with low-relevant context.--Hypothesis nine suggests that, given low-relevant context, core-dominance effects on perceived writer attitude should be most marked where readers have low comprehension ability. Highly able readers should be inclined to discount irrelevant cues.

A look at the means suggests a negative relationship (higher core-dominance leading to with lower perceived writer attitude toward core stand), especially with respondents of low ability. However, this finding did not reach significance (Table 15).

Hypothesis 10 states that core-dominance should influence certainty of attributed stand (albeit perhaps only slightly), even with low contextual relevance. Further, this tendency should be most marked where respondents lack the ability to separate relevant from irrelevant context.

Hypothesis 10 is not confirmed (see Table 16). Actually, it does not seem too surprising that core-dominance effects are non-existent or minimal where contextual relevance is low.

Additional Findings

Income Importance and Contextual Relevance--Are They Different?

The analysis to this point has ignored one question. How important is the core quantity, once its magnitude has been judged?

TABLE 15.--Average (mean) perceived writer attitude toward "core" topic with different core-dominance values, by comprehension ability groups, where contextual relevance is low.

	Core-Dominance		
	Low	Medium	High
High comprehension ability (6-10)	1.6	0.9	1.0
Low comprehension ability (0-5)	1.9	2.1	0.6
	1.8	1.5	0.8
Sample Size:	16	16	14
	18	18	17
	34	34	31

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	.9732	2	.4866	1.74	3.10
Between comprehension ability levels	.1871	1	.1871	0.67	3.95
Interaction: Core-dominance x comprehension ability	.5513	2	.2756	0.98	3.10
Within cells		93	.2800		

TABLE 16.--Average (mean) certainty of attributed writer stand with different core-dominance values, by comprehension ability levels, where contextual relevance is low.

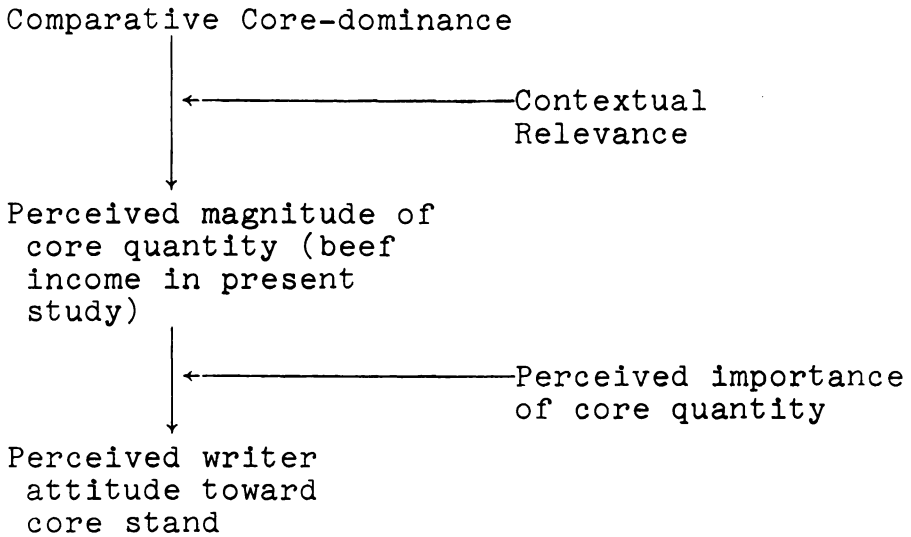
	Core-Dominance		
	Low	Medium	High
High comprehension ability (6-10)	11.5	11.0	11.0
Low comprehension ability (0-5)	10.8	11.1	10.6
	11.1	11.0	10.8
Sample Size:	16	16	14
	18	18	17
	34	34	31

Analysis of Variance Summary

Source of Variation	S.S.	d.f.	M.S.	F	$F_{.95}$
Between core-dominance levels	.0948	2	.0474	.10	3.10
Between ability levels	.1787	1	.1787	.39	3.95
Interaction: Core-dominance x ability	.4086	2	.2043	.44	3.10
Within cells		93	.4637		

A person may believe $7,000 is a huge annual income from a beef herd. Yet he may pay little attention to income because he has a personal love for dairy cattle or a desire to avoid risk. In short, income (the core quantity) may not look important to him as he interprets a message on beef.

A brief model will present this issue in more general terms.



The rationale in Chapter I suggests core-dominance should influence perceived magnitude of beef income most where contextual relevance is high. As noted earlier, the study provides some evidence for this claim.

Here, it is also proposed that perceived core magnitude will influence perceived writer attitude most where the reader feels the core quantity is important. In short, contextual relevance and perceived importance should independently influence core-dominance effects on perceived writer attitude.

In this study, perceived magnitude of beef income is merely an intervening variable. This variable is not measured directly.

Fortunately, one question was included to gauge perceived importance of income in deciding the merits of beef cattle. This question appeared at the end of the core-dominance portion of the questionnaire to avoid contaminating other responses. The question took the form:

> Now we would like to know how much emphasis you place on income in interpreting the message about beef cattle on p. 15. That is, how important did you feel the author's income estimates were as clues to the stand he ought to take about raising beef cattle?
>
> _____ Very important.
>
> _____ Fairly important.
>
> _____ Not very important.
>
> _____ Not important at all.

Ninety respondents said income was very important, 73 fairly important, 23 not very important, and seven not important at all. For this analysis, "very important" was defined as highly important, the other three responses as low-important.

The notion that contextual relevance and perceived importance of the core quantity independently influence perceived writer attitude generated four separate predictions. Two of these centered on relevance, two on importance.

> First, where core-dominance is low, relevant context should seem unfavorable to beef cattle. Thus, increasing relevance would reduce perceived writer attitude toward core topic. This should hold with perceived income importance controlled.

The top part of Table 17 "Predicted Relationships" shows this prediction in tabular form, while the top (low core-dominance) portion of Table 17 "Observed Mean Scores" shows the corresponding observed means. The low-relevance mean (1.8) exceeded the high-relevance mean (1.7) as predicted, but not by a significant amount ($t = 0.10$; $P > .05$).

> Second, where core-dominance is high, increasing relevance should increase perceived writer attitude toward core topic.

Where core-dominance was high, perceived writer stand averaged 2.8 with high contextual relevance, 0.8 with low relevance. This difference was as predicted, and it proved statistically reliable ($t = 4.01$; $P < .05$; 2-alternative).

Taken together, the first and second predictions suggest an interaction between core-dominance and contextual relevance, even with perceived importance of the core quantity controlled. The observed interaction was significant ($t = 2.93$; $P < .05$; 2-alternative).

It is now appropriate to consider the influence of perceived income importance with contextual relevance controlled.

> Third, where core-dominance is low, increasing perceived importance should reduce writer attitude toward core topic. This should hold even with contextual relevance held constant.

TABLE 17.--Perceived writer attitude toward "core" topic with different contextual relevance levels where comparative core-dominance and perceived importance of income are controlled.

Comparative Core-Dominance	Perceived Importance	Low Contextual Relevance		High Contextual Relevance
		Predicted Relationships		
Low	Low	A	>	B
Low	High	A	>	B
High	Low	B	<	A
High	High	B	<	A
		Observed Mean Scores		
Low	Low	2.3		2.0
Low	High	1.1		1.4
Total (low core-dominance)		1.8		1.7
High	Low	0.5		2.3
High	High	1.1		3.3
Total (high core-dominance)		0.8		2.8
Sample Size: Low core-dominance		20		17
		14		14
	Total	34		31
High core-dominance		17		15
		14		17
	Total	31		32

The top part of Table 18 "Predicted Relationships" shows this prediction in tabular form, while the top portion of Table 18 "Observed Mean Scores" shows the corresponding observed means. As predicted, the mean writer-attitude score with low importance (2.2) exceeded that with high importance (1.1). Further, this difference proved significant ($t = 2.19$; $P < .05$; 2-alternative).

> Fourth, where core-dominance is high, increasing perceived importance should increase writer attitude toward core topic. This should hold even with contextual relevance held constant.

Looking at the bottom portion of Table 18 "Observed Mean Scores," the high-importance mean (2.3) exceeded the low-importance mean (1.3) as predicted. Once again, the difference reached statistical significance ($t = 1.97$; $P < .05$; 2-alternative).

Taken together, predictions under three and four imply an interaction between perceived importance of the core quantity and comparative core-dominance. This interaction proved statistically significant ($t = 2.93$; $P < .05$; 2-alternative).

There seemed to be no basis for predicting how increased relevance or importance would influence perceived writer attitude given <u>medium</u> core-dominance. Thus medium core-dominance respondents were excluded from the present analysis.

To summarize briefly, a theoretic model was proposed indicating that:

TABLE 18.--Average (mean) perceived writer attitude toward "core" topic with different levels of perceived income importance where core-dominance and contextual relevance are controlled.

Comparative Core-Dominance	Contextual Relevance	Low Perceived Importance		High Perceived Importance
		Predicted Relationships		
Low	Low	A	>	B
Low	High	A	>	B
High	Low	B	<	A
High	High	B	<	A
		Observed Mean Scores		
Low	Low	2.3		0.7
Low	High	2.0		1.4
Total (low core-dominance)		2.2		1.1
High	Low	0.5		1.1
High	High	2.3		3.3
Total (high core-dominance)		1.3		2.3
Sample Size: Low core-dominance		20		14
		17		14
Total		37		28
High core-dominance		17		14
		15		17
Total		32		31

1. Perceived writer attitude toward core topic tends to increase as comparative core-dominance goes up.
2. The extent of core-dominance effects on perceived writer stand depends in part on contextual relevance and in part on perceived importance of the core quantity.

This model suggested four specific predictions, three of which were confirmed by the data. This appears to provide some support for the model.

Generalized Certainty of Attributed Stand

The analysis includes three variables reflecting the nature or content of a person's attitude or stand. These are as follows:

1. Reader's attitude degree on paying small-scale farmers to quit farming. This index is used to measure just how pro or con the reader is.
2. Perceived writer attitude on topic. Here the reader assesses the writer's stand about paying small-scale farmers--the issue discussed in testing iconicity effects.
3. Perceived writer attitude toward core topic. Here the reader assesses the writer's stand on beef cattle--topic of the message used in studying comparative core-dominance.

A certainty or intensity index accompanied each content index. One index checked intensity of the reader's own view about paying small-scale farmers. Certainty of attributed stand represents an effort to apply the same idea to perceived writer position.

Table 19 shows several interesting things.

First, the three content indices do not significantly correlate with each other. All three coefficients among them fall below the value of .14 needed to infer a significant difference from zero. There was no apparent general tendency for some people to favor issues (and to see authors as favorable) while others consistently took a more negative tack.

Second, the certainty indices all correlate significantly with each other. Certainty of attributed stand on paying small-scale farmers correlates .36 with certainty on beef cattle, even though the issues seem virtually unrelated. And both of these indices correlate significantly, though not very highly (.29 and .36) with reader attitude intensity toward paying small-scale farmers.

Third, in each case, the correlation between two intensity indices exceeds the correlation between corresponding content indices. Thus a person's tendency toward somewhat consistent intensity ratings apparently did not require consistency of content ratings.

What might this mean? Perhaps some people "jump to conclusions" about where any author stands on some

TABLE 19.--Correlations among indices of perceived attitude content and intensity.

	Intensity Indices		
	Reader Attitude Intensity (paying small-scale farmers)	Certainty of Attributed Stand (paying small-scale farmers)	Certainty of Attributed Stand (raising beef cattle)
	2	4	6
2		.36	.29
4			.36
6			

All correlation coefficients differ significantly from zero at the .05 level.

	Corresponding Content Indices		
	Reader Attitude Degree (paying small-scale farmers)	Perceived Writer Attitude on Topic (paying small-scale farmers)	Perceived Writer Attitude on Topic (beef cattle)
	1	3	5
1		-.01	.08
3			.05
5			

None of the content correlation coefficients differ from zero significantly. All are significantly lower than with the corresponding intensity indices in the top part of Table 19.

issues. Other persons may be consistently reluctant to draw such conclusions. Possible theoretic implications of this possibility will be discussed in Chapter IV.

Of course, the correlations among certainty indices may reflect in part acquiescence response set tendencies noted by Edwards (1957). It is rather difficult to decide how certain a message writer (or even oneself) is about a point he has never explicitly mentioned or thought about. Perhaps many readers settled on a particular "level of certainty" response and followed it mechanically.

However, response set per se does not seem to completely explain the phenomenon discussed here. Apparently some people "settle" on a highly certain response tendency, while others say they are uncertain.

Table 20 indicates that most respondents gave the "very" or "fairly" intense responses. On no index did more than about one-fourth of all respondents feel less certain (or feel less strongly) than that.

TABLE 20.--Percent of responses at various levels within three intensity indices.

Intensity Level	Attitude Intensity (Paying Small-scale Farmers)	Certainty of Attributed Stand (Paying Farmers)	Certainty of Attributed Stand (Beef Cattle)
	percent	percent	percent
Not very or not at all	8	19	14
Fairly	44	54	47
Very	48	27	39
	100 n = 193	100 n = 193	100 n = 193

CHAPTER IV

SUMMARY AND DISCUSSION

This concluding chapter summarizes and discusses the findings and considers their implications for future research and theory. Also discussed are implications for journalists and educators in agricultural extension and related fields.

Summary

The study included two separate experiments. One focused on an independent variable called iconicity, the other on comparative core-dominance. Each experiment will be summarized separately.

Iconicity

A highly iconic symbol like a picture physically resembles its referent. Low-iconic symbols--including most words--show little similarity to their referents. In the present study, it was assumed that message forms vary on iconicity from photographic pictographs (very high) to outline pictographs (fairly high), bar graphs (fairly low), and words alone (very low).

The experiment centered on two-sided messages, that is, on messages presenting both pro and con arguments about some issue. A person who saw a message as "pro" was assumed to weight "pro" arguments highly in interpreting the total message. Four propositions were tested.

First, increased iconicity of a message segment will increase the weight readers give that segment in attributing a stand to the total message, especially where the reader has low-intense attitudes on the issue discussed. This hypothesis was not confirmed.

Second, increased iconicity of a message segment will increase the weight readers give that segment in attributing a stand to the total message, especially where the reader has low ability to comprehend the message. This hypothesis was not confirmed, though results were in the predicted direction with iconicity of detail.

Third, increased iconicity of a message will increase certainty of stands attributed to the author, especially where the reader has low-intense attitudes on the issue discussed. This hypothesis was not confirmed.

Fourth, increased iconicity of a message will increase certainty of stands attributed to the author, especially where the reader has low ability to comprehend the message. This hypothesis was not confirmed.

In summary, none of the four propositions found support. Iconicity did not demonstrably influence either weighting of a message segment or certainty of attributed

stand. Since iconicity effects were generally lacking, reader attitude intensity and comprehension ability is not likely to influence the extent of these effects, as hypothesized in propositions 1, 2, 3, and 4.

Comparative Core-dominance

This experiment focused on how interpretation of a particular quantity (called a core quantity) might influence the stand attributed to an article writer. A core quantity should appear large compared to a small standard of comparison, small alongside a large standard.

Briefly describing the experimental article will help clarify the variables studied. The article discussed pros and cons of raising beef cattle in southern Michigan. Points mentioned included a core quantity (estimated $7,000 annual net income from a 25-cow beef herd) and a context quantity (income from another farm enterprise).

Two message properties were studied:

1. Comparative core-dominance. This variable was manipulated by varying the contextual quantity, that is, income from an enterprise other than beef. Core-dominance was high when the context quantity was low ($4,000 annual net income from the "other" enterprise), low where context was high ($10,000 annual net income from the "other" enterprise).

2. Contextual relevance. Some contexts usually appear more useful than others in assessing a particular core quantity. In this study, dairy cattle--a frequent alternative to beef--were considered highly useful or relevant to beef. Peaches were found to be of low relevance.

It was believed that, under certain conditions, increasing comparative core-dominance would make readers more inclined to feel the message writer favors a stand supported by high values of the core quantity. For example, an article suggesting that beef cattle bring larger profits than hogs should imply it is wise to raise beef. On the other hand, a statement that beef cattle earn less than hogs seems opposed to beef. The experiment sought to determine whether such core-dominance effects are especially pronounced under certain conditions.

A total of six propositions were tested.

First, increased comparative core-dominance should make an article appear favorable to the "core" topic (the position supported by high core values), especially where contextual relevance is high.

This proposition was confirmed, though the relationship between core-dominance and perceived writer attitude did not appear to be linear as hypothesized. Given highly-relevant context:

1. The change from low core-dominance (context quantity > core) to medium core-dominance

(context = core) did not significantly influence perceived writer stand.

2. Going from medium to high core-dominance (core > context) did make the writer appear more favorable to the core topic.

Second, increased comparative core-dominance will boost certainty of attributed writer stand, especially where context is highly relevant to core assessment. Results were in the predicted direction, but did not reach conventional significance levels.

The next two propositions focus on the case where a context quantity is highly relevant to assessment of the core quantity.

Third, given high contextual relevance, increased comparative core-dominance will make a message appear to favor the core topic, especially where respondents have high comprehension ability. This hypothesis was not confirmed.

Fourth, given high contextual relevance, increased comparative core-dominance will boost certainty of attributed writer stand, especially where readers have high comprehension ability. Results here were in the predicted direction, but did not reach significance.

The final two propositions focus on instances where context is of low relevance to assessment of core.

Fifth, given low contextual relevance, increased comparative core-dominance should boost apparent writer favorability to the core topic, especially where readers have low comprehension ability. The hypothesis was not confirmed.

Sixth, given low contextual relevance, increased comparative core-dominance will boost certainty of attributed stand, especially where readers have low comprehension ability. This hypothesis was not confirmed.

Additional Findings

Several observed relationships seem worthy of brief note, even though not covered by the hypotheses summarized above.

First, there was a hint that some people tend more than others to feel certain of stands they attribute, regardless of specific author or topic. Two specific results led to this tentative conclusion.

1. There was a statistically significant positive correlation (.36) between certainty of attributed stand scores on two seemingly quite unrelated topics--raising beef cattle in southern Michigan and paying small-scale inefficient farmers to quit farming.
2. There were similar correlations (.36 and .29) between certainty of attributed writer stand on each of the two topics and intensity of the

> reader's own attitude toward paying small-scale farmers to quit farming. Intensity can be viewed as the certainty with which one attributes an attitude to himself (Guttman and Suchman, 1947).

Second, the effect of comparative core-dominance on perceived writer stand seemed to depend on two factors, each of which exerted an independent influence:

1. Contextual relevance. Evidence on this variable was summarized earlier. Core-dominance effects were demonstrated only when a highly relevant context was used.
2. Perceived importance of the core quantity in assessing the message. In the present study, some people said the core quantity (estimated income from beef feeder cattle) counted little in deciding whether one should oppose or favor the core topic (it is wise to raise beef cattle in Michigan). For such people, comparative core-dominance had little or no influence on perceived writer attitude toward the core topic.

Some Further Tentative Trends--A Closer Look

Certain trends within the data failed to reach conventional significance levels. Yet these trends seem to merit further attention--albeit cautious--in view of their relevance to existing literature.

There was some indication, though not significant, that raising iconicity of detail within a message segment leads readers of low comprehension ability to weight that segment more heavily in interpreting a total message. This trend disappeared with readers of high ability.

Iconicity of detail was checked by comparing a detailed photographic pictograph with an outline pictograph. The outline version included only enough detail for readers to recognize what symbols referred to.

Perhaps readers of low ability found the outline pictograph difficult to understand. They may have simply failed to "get the point" of the pictograph. Or they may have tried so hard to do so that they paid little attention to other content needed for message interpretation.

Gibson (1954) noted that highly complex or hard-to-grasp symbols may attract attention away from the referent object or idea, which in turn may hinder interpretation. And in empirical studies, Thistlewaite (1950) and Bruner, et al. (1960) found some problem-solvers quite open to distraction by irrelevant, value-laden cues. Perhaps people of low ability were similarly distracted by puzzling outline pictograph symbols in the present study.

Core-dominance may influence certainty of attributed stand. In the core-dominance experiment, increasing core-dominance appeared to influence certainty of attributed stand as follows:

1. Moving from low to medium core-dominance brought virtually no change in certainty.
2. The increase from medium to high core-dominance did bring increased certainty.

While it doesn't reach significance, this overall trend seems interesting because it almost exactly parallels the trend found where perceived writer attitude was the dependent variable. Perhaps greater certainty went along with the view that the writer took a one-sided (pro-beef) stand.*

Weiss (1963) has noted evidence that one-sided messages tend to be assessed on a pro-con continuum with high inter-judge agreement. Levy and Richter (1963) found that people tend to judge such messages with little delay. Inter-judge agreement and willingness to judge quickly would seem likely to go along with high certainty--the variable measured in this study.

Discussion

This section will discuss possible reasons--both methodological and theoretical--why the present study failed to confirm several hypotheses.

Methodology

Sample size.--Was the sample of 193 adequate? Seemingly not if it would have taken an unduly large difference to attain statistical significance.

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*High core-dominance led readers to define the message writer as quite "pro" (mean = +2.8 on a scale from -5 to +5).

Table 21 shows the difference between two means on each dependent variable required to obtain a significant main effect, using a t-test and given the sample variances obtained.

Would differences smaller than these be "socially" significant? Social significance is, of course, a matter of judgment. In general, however, it seems reasonable to draw at least two conclusions.

First, increasing sample size (within reasonable bounds, at least) would probably have done little to alter results of the iconicity analysis. Few differences there approached significance. Even doubling the sample would have yielded only one significant interaction, assuming means and within-cell variances comparable to those obtained in the present study.

Second, increased sample size might have paid off in the core-dominance experiment. Doubling the sample (and thereby approximately doubling F-ratios, given no change in within-cell variance or cell means) would have yielded two additional significant hypothesized interaction effects.

Measurement--dependent variables.--Respondents had to make several rather difficult judgments in assessing perceived writer stand as well as certainty of attributed stand.

TABLE 21.--Difference needed for significant main effect.

Dependent Variable	Units on Scale 2 Means Must Differ at .05 Level	Range of Possible Scores	Range of Scores (units on scale)
Iconicity Experiment			
Perceived Writer Attitude	0.75	-3 to +3	6
Certainty of Attributed Writer Stand	1.4	0 - 18	18
Core-dominance Experiment			
Perceived Writer Attitude	0.7	-6 to +6	12
Certainty of Attributed Writer Stand	0.9	0 - 15	15

For example, in the iconicity experiment, one Likert-type item required that the reader decide whether the author felt subsidizing inefficient farmers is "wise because it's realistic." The message did not explicitly mention realism, so the reader had to judge with little to go on. Several respondents indicated after finishing that they had found such questions puzzling.

Fatigue, frustration, and puzzlement about author stand may have led to several kinds of behavior such as:

1. Marking that the author agreed with most or all items, perhaps without carefully considering each item.
2. Similarly marking that the author disagreed with most or all items.
3. Responding more or less randomly, without giving much careful thought to each question.
4. Carefully analyzing specific points in the message for clues to the author's position.

All four kinds of behavior might have tended to obscure or rule out iconicity effects. The first two (response set tendencies), which seemed quite common, would lead to near-neutral perceived writer attitude because Likert-type statements were used and half were negative. The third (random response) might swell the error term, making significance difficult to achieve. And the fourth reaction (an analytic view of specific

points mentioned) might keep readers from viewing the message "as a whole" so that iconicity could influence "weighting" of parts within that whole.

In future research, it might be wise to try other measurement techniques to gauge attributed message-writer stand.

Measurement--comprehension ability.--In a study like the present one a researcher can follow either of two paths in measuring comprehension ability:

1. He can build a test around points explicitly discussed in the article.
2. He can build a test of general ability to use principles and concepts in the topic area into which the message falls. This test might not refer to points specifically explained in the article.

The present researcher chose the second (general comprehension ability) approach to avoid sensitization effects. A test covering points mentioned in the message--if presented early--might influence later message interpretation. In particular, it might make the particular points tested salient in message interpretation. And the opposite sequence (message first, test later) might make the test little more than a check on care in message reading.

The "general comprehension" approach used here should avoid sensitization. However, one might argue

that the test did not include an adequate sample of concepts and principles most useful in interpreting a particular article. It seems difficult (though probably possible) to show that "elasticity of demand"--one concept covered in the present test--relates to the issue of paying small-scale farmers to quit farming.

Perhaps testing on points explicitly mentioned in the experimental article would not lead to sensitization in a longitudinal study. Here one might test first and give the message several days or weeks later. Such an approach was impossible in the present study, but it could well be tried in future research.

Sampling of messages.--In the present study, limited time available in test sessions restricted the researcher to one message per respondent (and one topic) in each of the two experiments. Clearly, a far wider sampling of topics would be desirable.

As suggested later, some topics seem more open to iconic presentation than others. Perhaps the rather technical, abstract articles used in this study did not maximize the impact of iconicity. Thus, wider sampling of topics might have borne fruit.

Theoretic Considerations

Iconicity.--The study yielded almost no evidence that iconicity generally influences either perceived

writer attitude or certainty of attributed stand. This failure could mean either of two things:

1. Iconicity simply does not influence perceived writer stand under any circumstances.
2. Iconicity does influence perceived stand under some conditions, but the present study failed to bring about these conditions.

Pursuing the second possibility, a further look at iconicity and its theoretic interpretation seems in order.

The first step will be to analyze two distinct aspects of the rationale on iconicity presented in Chapter I. It is important to consider what these aspects may assume about the reader. Further, how well were these assumptions met in the present study?

On p. 16, we have presented a sort of rational man view. Sometimes, it is suggested, one will carefully read a publication or article, noting its properties. For example, he may observe that a newspaper runs more pictures of Democrats than of Republicans. Based on this, he may decide the paper has Democratic leanings.

Such a process takes thought. The reader must use rather subtle cues. Readership studies indicate such thorough, thoughtful reading is rare. Newspaper readers tend to read carefully only when a story looks particularly interesting (Swanson, 1955).

Certainly, the sample used in the current study seems unlikely to run much above average in critical reading. Only 25 percent of the 193 respondents had gone to college. And even in college few students get systematic training in "critical reading."

The reader may note an apparent conflict here. In Chapter I, it was suggested that iconic cues may aid message comprehension most for the unsophisticated. Here, it is hypothesized that only the well-informed can really use iconic cues in inferring author stand.

Actually, the two arguments do not conflict, since they seem to deal with different processes.

First, a reader may try to understand what the reader is saying--to comprehend manifest content. According to Piaget (Flavel, 1963) and Ausubel (1963) readers of low ability ought to depend heavily on iconic, concrete cues.

Second, one may use message properties to infer author biases and intent. He may do this even without much understanding of message content (as for example, when he picks up a foreign-language newspaper, notes several pictures of Ho Chi Minh, and concludes the paper is pro-Communist).

To summarize, readers may first try to understand "manifest content." Here iconicity should prove most helpful to the unsophisticated. Then readers may try to assess author attitude or stand. At this point, only the sophisticated are apt to make much use of subtle message cues like iconicity.

All of the above sounds quite "rational." However, another aspect of the rationale in Chapter I has an irrational ring. It is suggested, for example, that a real tiger will generally attract more attention than the words "man-eating tiger."

Pictorial presentation of a message segment leads people to notice it and read it carefully, this argument assumes. Such careful attention, in turn, should bring high weighting of the segment in attributing a stand to the overall article.

The editor of the New York Daily News must have had some such argument in mind when he decided to attract newsstand attention with blood-and-guts pictures. He and other journalists apparently assume that pictures have the most impact when they deal with sensational topics.

At best, the experimental article on paying small-scale farmers to quit farming is probably moderate on sensationalism. It is relatively technical, hypothetical, and thus probably unexciting.

In short, the present topic and arguments may simply have provided little opportunity for pictorial treatment to add what Ruesch and Kees call "impact." Other topics might yield different results.

In summary, iconicity effects may have failed to show up in the present study partly because certain rather hidden assumptions were not met.

First, respondents may have lacked sophistication, interest, and time need for rational-man processes (careful consideration of message properties in inferring author intent) to operate effectively.

Second, the topic and arguments may have seemed too academic and unsensational for pictorial treatment to greatly increase attention-getting power. This issue will be explored further under "Suggestions for Future Research."

Internal anchorage and message effects.--Eight of the study's ten hypotheses stemmed partly from the belief that perception involves a "tug of war" between forces inside and outside the individual. There was no statistically reliable evidence that internal anchorage (attitude intensity and comprehension ability) influences the use people make of message properties in attributing a stand to the writer.

Neither comprehension ability nor attitude intensity is a theoretically clear concept. The social psychology literature seems far from clear and unanimous on what role, if any, each of these types of "internal anchorage" should play in message interpretation.

On one hand, Sherif and Sherif (1965, p. 62) and Manis (1961) hypothesized that message properties and other factors outside the reader should influence perception most where "internal anchorage" is low. The present study tested hypotheses derived from this view.

On the other hand, it is possible to defend the opposite view--that message properties play a strong role where internal anchorage is high.

As mentioned earlier, only relatively well-informed, interested readers (i.e., those of high comprehension ability) may use message properties like iconicity in inferring writer intent.

Further, the "selective perception" notion implies that intense attitudes may influence what cues we stress. Perhaps an intense attitude would lead one to:

1. Focus heavily on arguments supporting his own position. Iconic presentation of such arguments may help draw attention to them, thereby increasing focusing tendencies.
2. Ignore cues opposed to his position. Iconic presentation might reduce selective perception by making it difficult to ignore such arguments.

Of course, this line of reasoning seems especially tentative in view of recent literature suggesting that evidence for selective perception generally is anything but conclusive (Berkowitz, 1964).

It seems reasonable to suggest that use of comprehension ability and attitude intensity as predictors of message interpretation may prove unfruitful pending further clarification of these concepts.

Perceived writer stand as a dependent variable.--A number of investigators have found that iconicity correlates with comprehension level (Feliciano, et al., 1962) as well as with attention (Berlyne, 1957; Swanson, 1955). Apparently no one prior to this study has used iconicity as a predictor of perceived writer stand.

As Sherif, Sherif and Nebergall (1965, p. 146) point out, message properties have been regarded as control problems--as variables to be held constant--in studies of social judgment. The present study suggests it may be unsafe to extrapolate findings involving comprehension and attention to perceived writer stand.

Contributions to Theory

The comparative core-dominance experiment suggests at least two generalizations not previously documented.

First, relevant context can influence interpretation of an entire article. Most earlier studies of context in social judgment focused on labels or single statements. For example, they have dealt with occupational titles (Rogers, 1941; McGarvey, 1943), statements from a militarism-pacifism scale (Fehrer, 1952), statements about Negroes (Upshaw, 1962), and so on.

Second, contextual relevance helps determine context effects. To the author's knowledge, no variable closely resembling contextual relevance has appeared in the social judgment literature. Helson (1956) recognizes

that some contextual items tend to be central, others unimportant, in a given situation. But he seems to deal little with just what determines importance.

Brown (1953) has found that context effects are strong where context physically resembles core. In the present study, contextual relevance included physical core-context similarity as one aspect, technical relevance as another.

Implications for Future Research

Iconicity

Results of this study seem far from encouraging. Yet there are several reasons why iconicity deserves future emphasis.

First, practitioners stress the importance of iconicity every time they plead--as they often do--for more pictures. Readability studies and newsstand sales strongly suggest iconic symbols do attract attention. Thus it seems important to clarify and explain what Ruesch and Kees call the "impact" of pictures (1956, pp. 8-9).

Second, the iconicity notion seems related to several types of theory. In the present study, no fewer than six theoretic arguments were used to defend predictions. It is not easy to interpret message properties in psychologically meaningful ways, and any property so interpreted deserves attention.

Third, other research indicates that iconicity of magnitude does aid comprehension (Feliciano, et al., 1962).

In light of all this, it seems appropriate to suggest research avenues which are:

a. Consistent with theoretic orientations underlying this study.

b. Consistent with failures involving iconicity in the present analysis.

Types of training and ability.--It might be fruitful to see if iconicity influences message perception where readers have two distinct types of sophistication and training:

1. Training in layout, design, and critical reading. Art work and layout might prove particularly salient to the practicing editor, the typography student, and the artist.

2. Substantive training about and interest in the issue discussed.* As suggested earlier, only the politically astute, interested reader may take time to note things like the approximate number of Democrats pictured on a paper's front page. Further, a writer may seem especially biased where he uses art work to "play up"

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*In the present study, only 25 percent of the total sample reported any specialized training beyond high school.

seemingly weak or tangential arguments. And perhaps only the well-informed, highly interested reader will generally attempt to decide which arguments are weak and which are strong.

It would be of interest to check the influence of each type of training on use of iconic cues in message comprehension as well as in assessing writer attitudes.

Sensationalism.--The notion of sensationalism may also warrant further attention. Newsmen have long discussed it. Tannenbaum and Lynch (1960) have developed an index (SENDEX) to measure it. Another study (Tannenbaum and Lynch, 1962) investigated correlates of sensationalism. But few researchers have analyzed sensationalism theoretically.

A sensational article would seem to have at least two characteristics.

First, it tends to elicit emotional or other responses involving the involuntary nervous system. In a word, it somehow gets people excited or steamed up. Devices such as the psychogalvanic skin response might prove useful in further steps toward adequate operationalization.

Second, it implies pictures and other art work, if used, would have particular impact. Here is where iconicity seems very important.

Most newsmen would probably give a higher sensationalism rating to Marilyn Monroe's death than to even an

important General Motors Board of Directors meeting. Why? Perhaps partly because a pictorial report of the board meeting may attract little more attention than a purely verbal account. But a pictorial account of Marilyn Monroe may get far more readership than any verbal account of her.

Sensational events like a huge flood or fire also seem particularly potent when presented visually.

"Pictorability," in short, may be part of sensationalism. As a result, iconic symbolism may have special impact on message perception where the topic is sensational.

Sensationalism may often prove important when studying iconicity of detail (and perhaps shape, as in the Marilyn Monroe example!).

Iconicity of magnitude may also make a difference where a topic seems fascinating partly because of magnitude. Consider a side view of Marilyn Monroe. Also, other things equal, most newsmen would rate a mass murder of 200 people as more sensational than a murder of one individual. A graph showing a stack of 200 bodies might make the 200 deaths a very salient point within an article.

Future studies could see whether iconicity influences interpretation markedly where an article is sensational.

Completeness.--Another variable that may shed light on iconicity effects may be completeness of representation. For example, a picture of Hereford cattle may refer only

to Hereford cattle. Or, as in the present study, a picture of a dairy cow may resemble only part of its intended referent (Michigan farm produce).

Iconic symbolism may often be less clear to the reader with partial than with almost complete representation. In the present study, poultry farmers may have found it difficult to regard dairy cattle as a symbol of all farm produce. This may help account for the general lack of results with iconicity.

Ideas for Future Research--Comparative Core-Dominance

Wider range of quantities.--Results of this study tentatively suggest that perceived writer stand may relate to comparative core-dominance in a non-linear way. Future research might attempt to clarify this relationship, using a wide range of contextual values.

In the present study, the jump from low to medium core-dominance did not demonstrably influence perceived writer stand. However, the move from medium to high core-dominance did make the writer appear more friendly to the core stand.

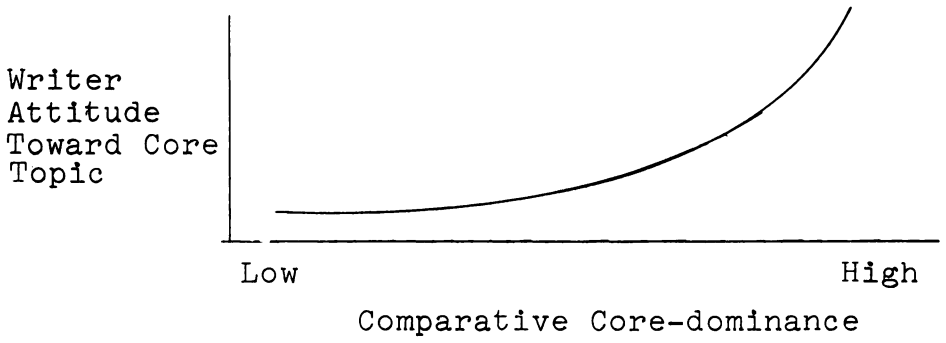
At this point, it may be fruitful to speculate. Many people feel beef has important disadvantages. It is fairly new to many. It is risky. And so on. In light of all this, beef may not cross the "threshold" from bad to good until estimated beef income appears

high enough to offset these disadvantages. Perhaps income merely on a par with dairying, as in the medium core-dominance condition, doesn't do the trick.

Things might have been different had beef been generally preferred to dairying. Then even a modestly high apparent beef income might have put beef "over the top" compared to dairying. Further increases beyond that modest level might improve beef prospects very little.

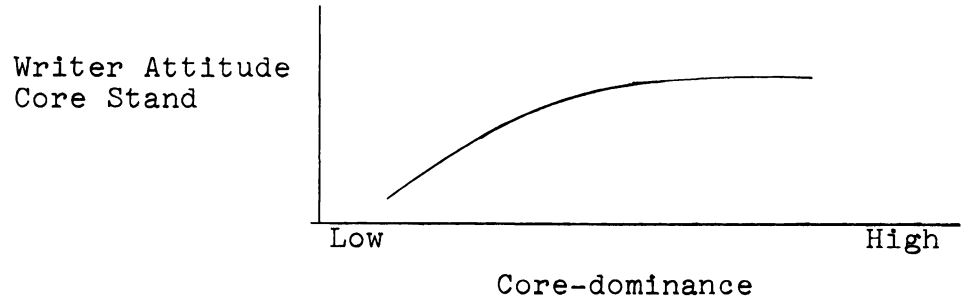
Such an interpretation suggests two hypotheses.

First, intense attitudes opposed to the "core" topic (that is, to the conclusion associated with high core values) should lead to the following type of relationship.



Here the core quantity (beef income in the present study) must get quite high before the "core" topic (for example, it is good to raise beef) seems supported by the message. An increase from "low" to "medium" core value may influence apparent author stand very little.

Second, intense attitudes favoring the "core stand" prior to reading the message lead to the following of relationship.



Here even a moderate core quantity may put the core stand "over the top." To a real beef-lover, even moderate income may make beef cattle appear extremely attractive.

Determinants of contextual relevance.--The present study made no attempt to separate two aspects of relevance--context-core similarity and technical grounds (based on enterprise relationships) for considering context useful. In future research, it might be reasonable to study cases of low similarity but high technical relevance and the converse.

Contextual relevance may depend on other factors, too. For one thing, familiar, well-known contextual quantities might often seem highly relevant to a judgment task. A peach farmer might find peach income useful in assessing beef income, even though agricultural economists might not.

Salience within a message may also prove important. Layout and design efforts to "play up" context might encourage use of context in assessing core. Such playing up could be done experimentally.

Certainty of Attributed Stand--
Research Implications

Future studies might further explore the idea of a "generalized" certainty of attributed stand.

For one thing, correlational studies could check whether a "certainty" dimension holds across a variety of topics. If it does, the next step might be to see if several personality variables predict certainty of attributed stand.

Certainly, the person who "jumps to conclusions" about a writer's stand seems like no stranger to social psychology. He acts much like Kelman's "cognitive simplifier" (1961, pp. 74-77), Holtzman and Klein's "leveller" (1961) and other types suggested in the literature. These labels imply a tendency to seek closure in a hurry, then retain it at all costs.

Rokeach's belief systems theory (Rokeach, 1960) also seems relevant. Having decided for certain where an author stands, a reader may "closed-mindedly" ignore opposed evidence. Rigid, unchanging beliefs may result.

Uncertain "stand attributers," on the other hand, may rely on information sources in tentative rather than absolute ways. It seems difficult to lean heavily on

another's judgment (a la Rokeach's highly dogmatic person) when you don't feel sure what that judgment is.

All of this, of course, is highly tentative. But it may suggest important areas for future study.

Practical Implications

Comparative Core-Dominance

Adult educators often try to teach skill in analyzing problems. The concepts of comparative core-dominance and contextual relevance should help the educator figure out just what measurable behaviors go into such analysis.

For one thing, an "analyst" must process and interpret information. The present study suggests several questions that the educator might ask in deciding how his audience should and does interpret figures.

First, just what facts in a message seem important?

Second, assuming some of these facts are quantitative, how large do the quantities seem?

Third, how does one use contextual quantities? Does high context imply high core? Does high context imply low core, as many theorists assume? Or is the relationship more complex?

Fourth, what contexts are most important? Does the reader rely on appropriate contextual quantities as standards of comparison? Does he rely mainly on standards within the message (perhaps so if he's a novice in the topic area

discussed)? Or does he depend partly on "stored up" beliefs (in Helson's terms, on residual factors)?

The educator may want to change audience reactions in each of these areas. Further, the writer who asks such questions of himself may occasionally stop to point out core-context relationships. This, in turn, may aid understanding.

Evaluation.--Educators might also use the core-dominance and contextual relevance notions in building instruments to evaluate program success.

Consider an extension agent who wants farmers to evaluate beef prospects in light of the poultry situation. A direct question about poultry's relevance to beef might seem vague and difficult to understand.

Instead of asking a direct question, the agent might present information about beef in several contexts, some of which refer to poultry. Each time, the respondent might be asked to decide if he would raise beef cattle given the stated assumptions. If poultry prospects influence decisions about beef, the agent can infer that the farmer considers poultry relevant to beef.

In short, it should not be difficult to get direct behavioral evidence of contextual relevance in a judgment task. The evaluator or researcher need not rely on introspection about "what relates to what."

An indirect approach to writing.--The core-dominance notion also suggests it may be possible to influence beliefs about core by talking mostly or entirely about context. An example may help clarify this point.

An extension beef specialist can try to make beef cattle look good by praising them directly. He can also make beef look good by criticizing dairy cattle--a practical alternative to beef.

Now, people may feel the beef specialist has a vested interest in praising beef. As a result, they may feel suspicious of his praise. But they may "let their guards down" when he talks about dairying. At least, they may if his remarks about dairying cause them to forget or ignore the fact that he's a beef specialist. Of course, this may work only if the audience sees dairying as related to beef.

Pay attention to audience attitudes.--As speculated earlier, comparative core-dominance effects may depend partly on audience attitudes. At least, such a view seems consistent with certain results of the present study.

Pending further research, it is possible only to speculate how writers should take reader attitudes into account. Perhaps knowledge of audience attitudes can help a writer decide when a given change in some core quantity may seem:

1. Minor compared to opposed considerations, and therefore of little value in determining perceived writer stand.
2. Crucial in moving one across a "threshold" from a negative to a positive (or vice versa) assessment of some "core object" like beef cattle.
3. Support which might reinforce an assessment based largely on other evidence.

Much of the above is highly speculative and goes well beyond the current data. Yet it suggests the widespread possible application of the general idea of comparative core-dominance.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

Appendix A

Questionnaire

AGRICULTURAL ARTICLE STUDY

Department of Communication
Michigan State University

C1
C2_____Project Number
C3

C4
C5_____Deck Number

C6
C7
C8_____Subject Number
C9

C10_____Card Number

In this study, we are asking for your views in the general areas of farm management and farm policy. We're also interested in seeing what you think about some messages on agricultural topics.

All of the answers you give will be kept confidential. We are not interested in studying you as an individual. Rather, we hope to study answers given by different kinds or groups of people

To begin with, we would like your views on certain questions in the area of government policy toward agriculture.

In recent years, Americans have expressed much concern over low income on farms. Some people have suggested that the federal government might pay small-scale farmers to get completely out of farming.

Below are some statements people have made about paying small-scale farmers to get out of agriculture. Please read each statement. Then indicate whether, in general, you agree or disagree with the statement, and how strongly you feel about that statement.

Please answer every question, even if you are not sure.

11. "Paying inefficient, small-scale farmers to leave agriculture is apt to go a long way toward solving the nation's farm problem."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

12. How strongly do you feel about the answer you just gave?

_____Very strongly.

_____Fairly strongly.

_____Not very strongly.

_____Not strongly at all.

13. "All in all, paying inefficient, small-scale farmers to leave farming does not seem like a good idea."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

14. How strongly do you feel about the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

15. "No person in his right mind would really recommend paying small-scale, inefficient farmers to get out of farming."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

16. How strongly do you feel about the answer you just gave?

_____Very strongly.

_____Fairly strongly.

_____Not very strongly.

_____Not strongly at all.

17. "Paying small-scale, inefficient farmers to get out of farming seems wise because it's realistic."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

18. How strongly do you feel about the answer you just gave?

_____Very strongly.

_____Fairly strongly.

_____Not very strongly.

_____Not strongly at all.

19. "Any administration that supports a program of paying farmers to get out of farming ought to be thrown out of office."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

20. How strongly do you feel about the answer you just gave?

_____Very strongly.

_____Fairly strongly.

_____Not very strongly.

_____Not strongly at all.

21. "The person who invented the idea of paying farmers to quit farming made a fine contribution to his country's well-being."

_____In general, I agree.

_____In general, I disagree.

_____I neither agree nor disagree.

22. How strongly do you feel about the answer you just gave?

_____Very strongly.

_____Fairly strongly.

_____Not very strongly.

_____Not strongly at all.

Now we would like to know how familiar you happen to be with a few ideas about agricultural economics and farm management.

Below are several statements. Each of these has one and only one correct form. Please put a check mark in the blank within each statement which would make that statement correct.

First, here are two examples:

1. Today, the majority of Americans live:

_____on the farm.

__x__off the farm.

2. At present, the secretary of agriculture in this country is:

__x__Orville Freeman.

_____Ezra Taft Benson.

_____Clinton Anderson.

Now please read each statement carefully and check the answer you think is correct. Each statement has only one correct answer. If you are not sure which answer is correct, guess anyway. Please do not leave any questions unanswered.

23. Compared to an average crop, a bumper crop generally makes prices drop:

_____a little.

_____a lot.

24. It's more crucial to get a large price per pound sold when you are selling:

_____younger beef cattle.

_____older beef cattle.

25. Assume 100 pounds of fertilizer per acre increases yields by 10%. Applying 200 pounds per acre would normally increase yields:

_____more than 20%.

_____exactly 20%.

_____less than 20%.

26. Diversification generally causes variations in a farmer's year-to-year income to:

_____increase.

_____stay the same.

_____decrease.

27. In general, labor needs are more seasonal on which type of farm:

_____specialized farms.

_____diversified farms.

_____the above are about equally seasonal.

28. In general, which kind of livestock makes better use of low-quality feed and farm by-products?

_____beef cattle.

_____dairy cattle.

29. A common index of labor efficiency on a farm is:

_____man-work-units per head of livestock.

_____man-work-units per man.

_____man-work-units per acre.

30. Prices for farm products tend to vary in regular cycles, apparently largely because farmers base future production decisions on:

_____probable future prices.

_____cost trends.

_____present prices.

31. Concern with "parity" in farm programs implies a desire to:

_____increase prices paid to farmers.

_____stabilize prices paid to farmers.

32. Some people have wondered how the base-surplus system might influence dairy-farm management. In general, the base-surplus system seems likely to:

_____encourage, quick drastic expansion.

_____discourage quick, drastic expansion.

_____neither of the above.

Now we would like to return to the question of paying small-scale farmers to quit farming.

First, we would like to have you read an article written by an economist, summarizing what he sees as the key arguments for or against the idea of paying farmers to quit farming.

Now please turn to the next page, and read the entire article.

(After page 10, one of the 4 versions of the message used to manipulate iconicity was inserted. See Appendix B for these versions.)

Now we would like you to decide where you think the economist who wrote this article stands on the issue. Is he for paying inefficient farmers to quit farming? Or is he opposed to such payments?

Remember that you are not to give your own opinions in this section.

Following are some statements people have made about paying inefficient, small-scale farmers to get out of farming. Please read each statement. Then tell whether, in general, you feel the economist who wrote the article you just read agrees or disagrees with that statement. Also indicate how certain you are that he agrees or disagrees.

If you feel uncertain about the economist's position, guess anyway. Please do not leave any blank spaces.

33. "Paying inefficient, small-scale farmers to leave agriculture is apt to go a long way toward solving the natinn's farm problem."

_____In general, the author agrees.

_____In general, the author disagrees.

34. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

35. "All in all, paying inefficient, small-scale farmers to leave farming does not seem like a good idea."

_____In general, the author agrees.

_____In general, the author disagrees.

36. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

37. "No person in his right mind would really recommend paying small-scale, inefficient farmers to get out of farming."

_____In general, the author agrees.

_____In general, the author disagrees.

38. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

39. "Paying small-scale, inefficient farmers to get out of farming seems wise because it is realistic."

_____In general, the author agrees.

_____In general, the author disagrees.

40. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

41. "Any administration that supports a program of paying farmers to quit farming ought to be thrown out of office."

_____In general, the author agrees.

_____In general, the author disagrees.

42. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

43. "The person who invented the idea of paying farmers to quit farming made a fine contribution to his country's well-being."

_____In general, the author agrees.

_____In general, the author disagrees.

44. How certain are you that the message author really takes the position that you have just indicated?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

Now suppose for a moment that a county extension agent must decide whether he should encourage farmers in his southern Michigan county to seriously consider raising beef feeder cattle. He surveys the facts on the subject and summarizes his findings in the following article. (Note: In reading this article, assume the figures given are accurate. Most are reasonable, but a few could be debated.

(Page 15 was the experimental message used to manipulate comparative core-dominance and contextual relevance. See Appendix C for the 6 versions of this message. One and only one version went into each questionnaire.)

Now we would like to know what you think the county agent ought to do. That is, just how strongly should he come out for or against beef cattle, based on the information given?

Below is a list of actions which the county agent might take. Please indicate the actions you think he should take, and the actions he shouldn't, based on the information given. Also indicate how sure you are of the answers you gave. Please answer each question, even if you're not sure of the best response.

45. "Strongly advocate widespread adoption of beef feeder cattle in his county."

_____The county agent should.

_____The county agent should not.

_____It's impossible to tell.

46. How certain are you of the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

47. "At best take a slightly negative stand on raising beef cattle."

_____The county agent should.

_____The county agent shouldn't.

_____It's impossible to tell.

48. How certain are you of the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

49. "Hold a series of educational meetings to promote beef-feeding."

_____The county agent should.

_____The county agent shouldn't.

_____It's impossible to tell.

50. How certain are you of the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

51. "Tell farmers that beef feeding looks like a bad bet, not generally worth serious consideration."

_____The county agent should.

_____The county agent shouldn't.

_____It's impossible to tell.

52. How certain are you of the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

53. "Tell farmers it will be well worth their while to learn more about beef-feeding."

_____The county agent should.

_____The county agent should not.

_____It's impossible to tell.

54. How certain are you of the answer you just gave?

_____Very certain.

_____Fairly certain.

_____Not very certain.

_____Not certain at all.

55. Now we would like to know how much emphasis you placed on income in interpreting the message about beef cattle on page 15. That is, how important did you feel the author's income estimates were as clues to the stand he ought to take about raising beef cattle? Would you say income was:

_____Very important.

_____Fairly important.

_____Not very important.

_____Not important at all.

Please check one blank for each of the following items.

56. I am now:

_____an active, full-time farmer.

_____a part-time farmer, also working part-time off the farm.

_____a retired farmer who no longer actively farms.

_____a non-farmer working in town.

_____a housewife.

57. In the past, I:

_____have been a full-time farmer.

_____have never been a full-time farmer.

58. In school, I have completed:

_____more than 4 years of college, and hold at least 1 degree.

_____4 years of college, and hold a degree.

_____some college, but with no degree.

_____high school.

_____some high school without graduating.

_____all or part of grade school only.

59. I am a:

_____man.

_____woman.

APPENDIX B

EXPERIMENTAL MESSAGES USED TO MANIPULATE ICONICITY

There were four versions of this message. One version followed page 10 of each questionnaire.

VERBAL VERSION

Should The Government Help Inefficient Farmers Quit Farming?

On the "Pro" Side . . .

Some people think the government should help small-scale, inefficient farmers get out of farming. Such farmers, it's assumed, could then earn a better living in non-farm jobs.

Advocates of "whole-farm" land retirement feel people with efficient farms can succeed despite fairly low prices in a highly competitive market for farm products.

Inefficient farmers, on the other hand, are running into trouble. Such farmers have few resources to expand, so their future in farming does not look bright. Yet few can afford to leave the farm without financial help.

A few figures will show why small-scale, inefficient farmers are a big problem in the United States.

First, inefficient farmers out-number efficient ones by about 3 to 1 (or in total numbers, by 2,604,000 to 868,000).

Second, efficient farmers do most of the producing. In fact, they accounted for about 70% of American's $36.9 billion worth of farm-product sales in 1965. Inefficient farmers account for only 30% of the farm sales.

Third, in total then, the efficient farmer produces about 7 times as much as the average inefficient farmer. On the average, efficient farmers sold $29,760 worth of farm goods compared to $4,250 by each inefficient farmer in 1965.

On the "Anti" Side . . .

Other people feel having the government help inefficient farmers quit farming is apt to create more problems than it solves.

For one thing, it is not clear how people who leave farms would earn a living. Inefficient farmers, being fairly poor, would have little training for non-farm jobs. And it's no more fun to be poor in town than on a farm.

Further, taking inefficient farms out of agriculture would not greatly reduce farm surpluses. Economists estimate that about 60 million of the nation's 450 million cropland acres would have to be removed from agriculture to really put a dent in the farm problem. Such huge shifts might cost the govenment over a billion dollars, economists believe.

Opponents of land retirement point to several other disadvantages.

For one thing, it's short-sighted. Land taken out of farming is going to sprout businesses, roads, and homes — all making it impossible to farm that land in the future. And many economists feel we may need all the farmland we can get in the future as population, world trade, the weather, and other factors change.

Also, land retirement goes against the grain of many Americans. Paying one simply to quit farming amounts to little more that a direct handout by Uncle Sam. Quite a paradox in a land where each person is taught he should earn his own way as much as humanly possible.

BAR GRAPH VERSION

Should The Government Help Inefficient Farmers Quit Farming?

On the "Pro" Side . . .

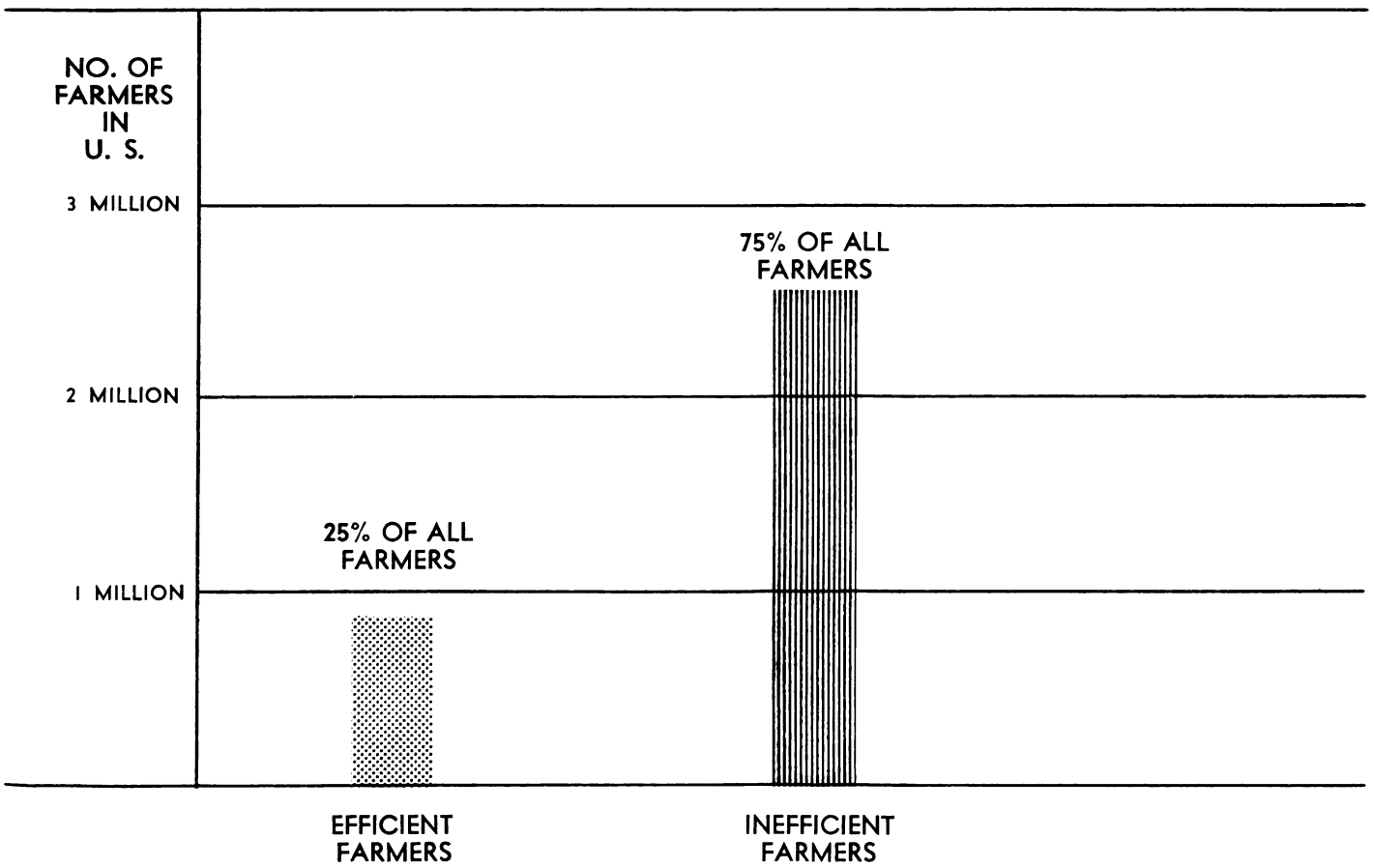
Some people think the government should help small-scale, inefficient farmers get out of farming. Such farmers, it's assumed, could then earn a better living in non-farm jobs.

Advocates of "whole-farm" land retirement feel people with efficient farms can succeed despite fairly low prices in a highly competitive market for farm products.

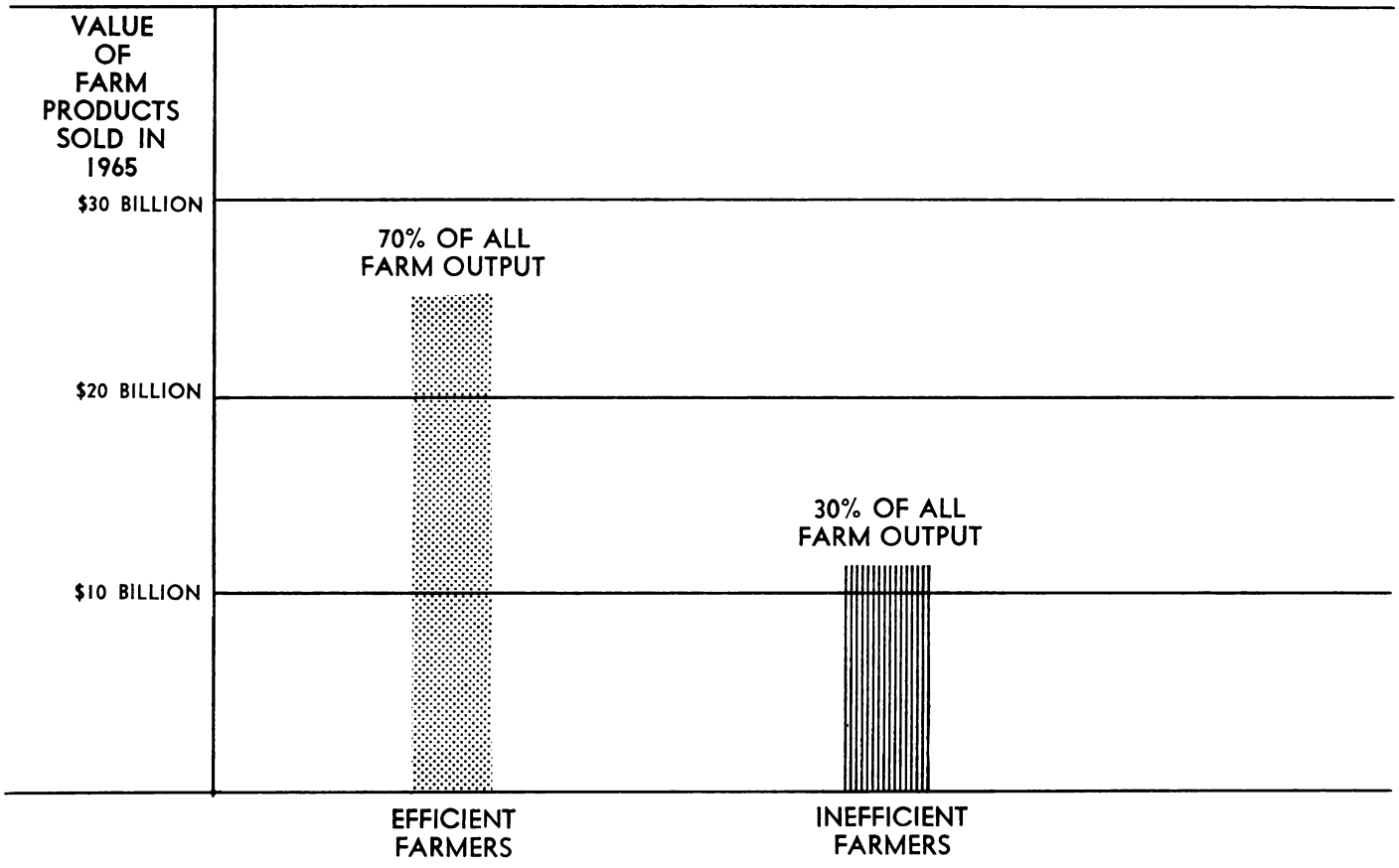
Inefficient farmers, on the other hand, are running into trouble. Such farmers have few resources to expand, so their future in farming does not look bright. Yet few can afford to leave the farm without financial help.

A few figures will show why small-scale, inefficient farmers are a big problem in the United States.

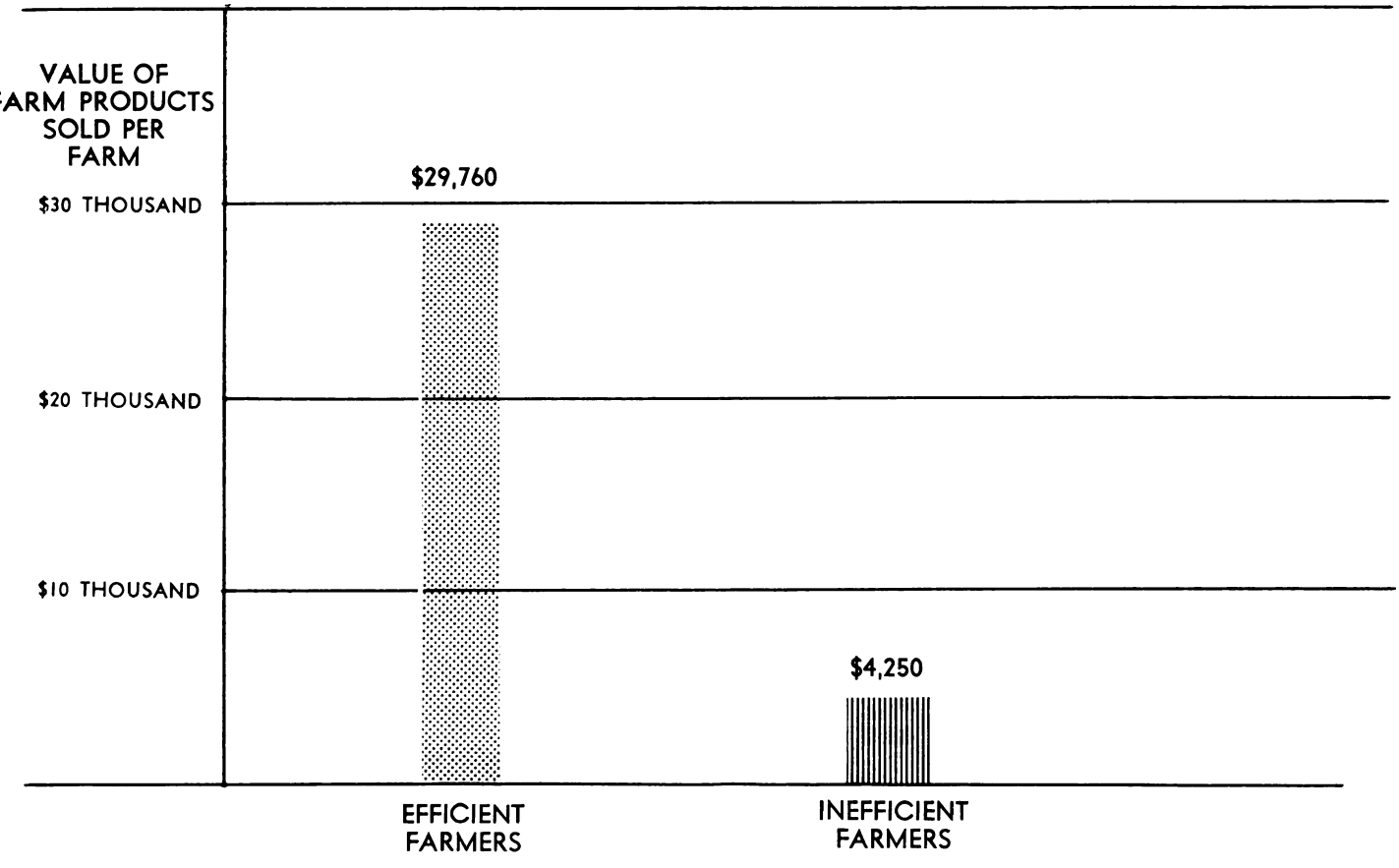
Efficient, Large-Scale Farmers Are Few In Number



Yet They Do Most Of The Producing



In Total, Then, Efficient Farmers Produce Almost 7 Times As Much Per Farm As Inefficient Farmers Do.



On the "Anti" Side . . .

Other people feel having the government help inefficient farmers quit farming is apt to create more problems than it solves.

For one thing, it is not clear how people who leave farms would earn a living. Inefficient farmers, being fairly poor, would have little training for non-farm jobs. And it's no more fun to be poor in town than on a farm.

Further, taking inefficient farms out of agriculture would not greatly reduce farm surpluses. Economists estimate that about 60 million of the nation's 450 million cropland acres would have to be removed from agriculture to really put a dent in the farm problem. Such huge shifts might cost the govenment over a billion dollars, economists believe.

Opponents of land retirement point to several other disadvantages.

For one thing, it's short-sighted. Land taken out of farming is going to sprout businesses, roads, and homes – all making it impossible to farm that land in the future. And many economists feel we may need all the farmland we can get in the future as population, world trade, the weather, and other factors change.

Also, land retirement goes against the grain of many Americans. Paying one simply to quit farming amounts to little more that a direct handout by Uncle Sam. Quite a paradox in a land where each person is taught he should earn his own way as much as humanly possible.

OUTLINE PICTOGRAPH VERSION

Should The Government Help Inefficient Farmers Quit Farming?

On the "Pro" Side . . .

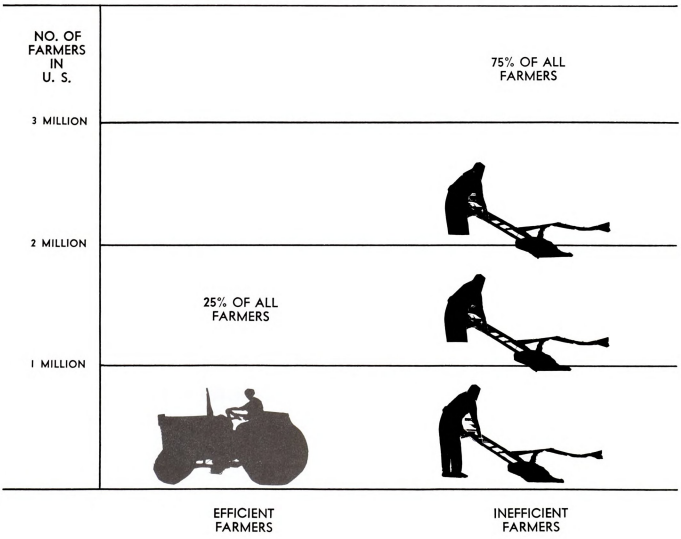
Some people think the government should help small-scale, inefficient farmers get out of farming. Such farmers, it's assumed, could then earn a better living in non-farm jobs.

Advocates of "whole-farm" land retirement feel people with efficient farms can succeed despite fairly low prices in a highly competitive market for farm products.

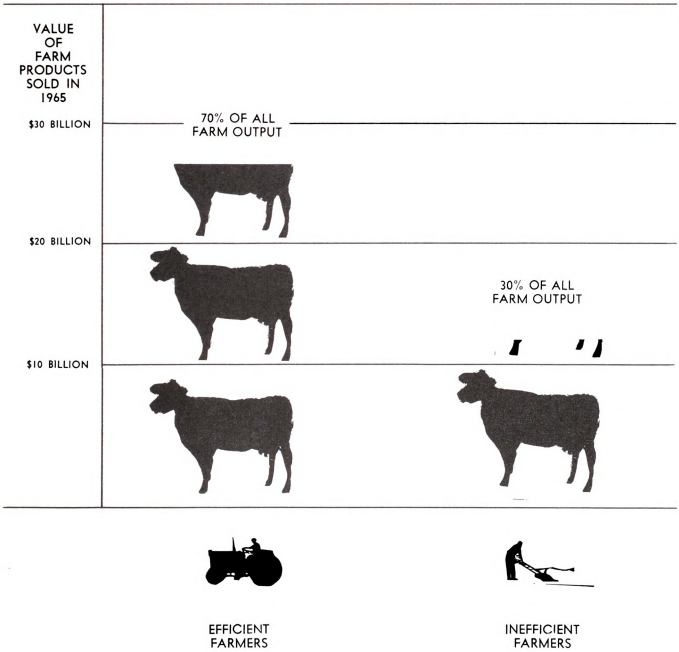
Inefficient farmers, on the other hand, are running into trouble. Such farmers have few resources to expand, so their future in farming does not look bright. Yet few can afford to leave the farm without financial help.

A few figures will show why small-scale, inefficient farmers are a big problem in the United States.

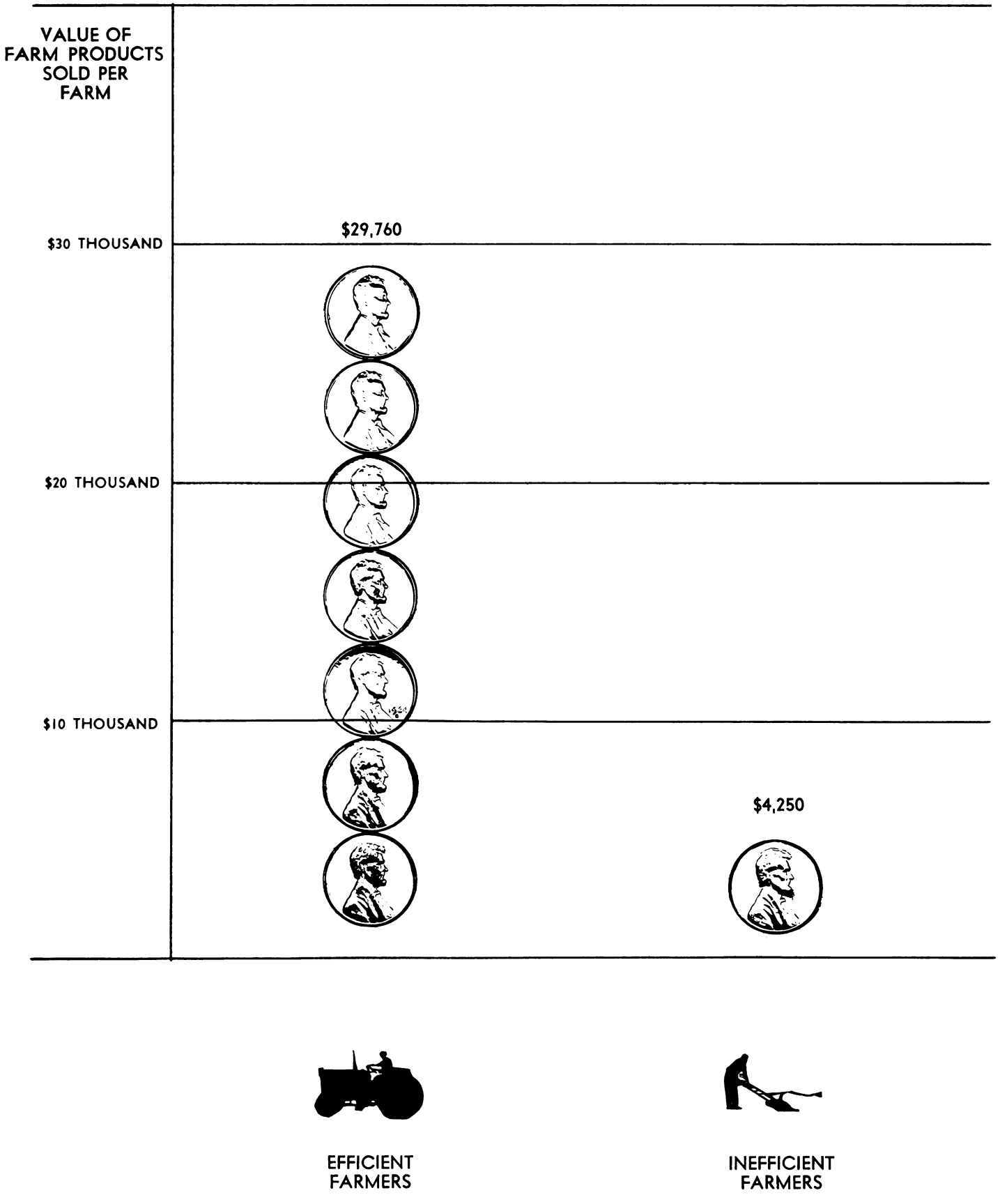
Efficient, Large-Scale Farmers Are Few In Number



Yet They Do Most Of The Producing



In Total, Then, Efficient Farmers Produce Almost 7 Times As Much Per Farm As Inefficient Farmers Do.



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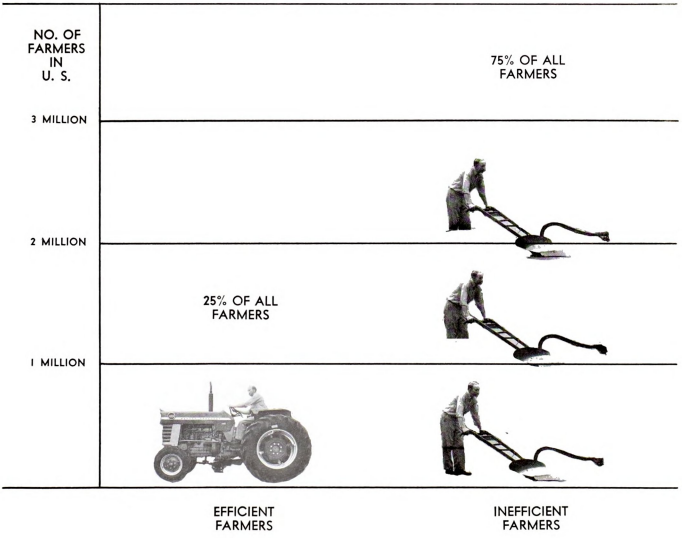

Yet They Do Most Of The Producing

VALUE OF FARM PRODUCTS SOLD IN 1965

$30 BILLION

70% OF ALL FARM OUTPUT

$20 BILLION

30% OF ALL FARM OUTPUT

$10 BILLION

EFFICIENT FARMERS

INEFFICIENT FARMERS

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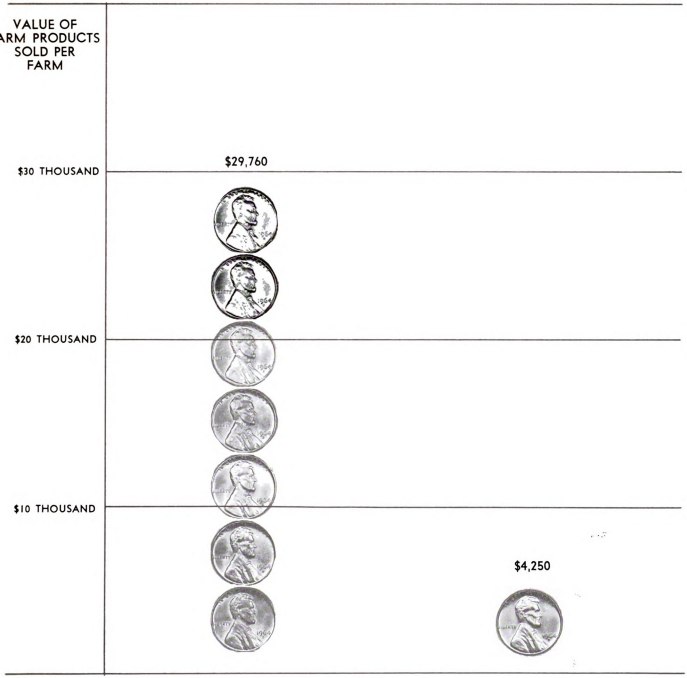

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APPENDIX C

EXPERIMENTAL MESSAGES USED TO MANIPULATE COMPARATIVE CORE-DOMINANCE AND CONTEXTUAL RELEVANCE

There are six versions of page 15 of the questionnaire, with one version going into each questionnaire. Manipulations were as follows.

Key Number (see top of page)	Core-dominance	Contextual Relevance
15(1-1)	Low	Low
15(1-2)	Low	High
15(2-1)	Medium	Low
15(2-2)	Medium	High
15(3-1)	High	Low
15(3-2)	High	High

FEEDER CATTLE--ARE THEY A GOOD BET?

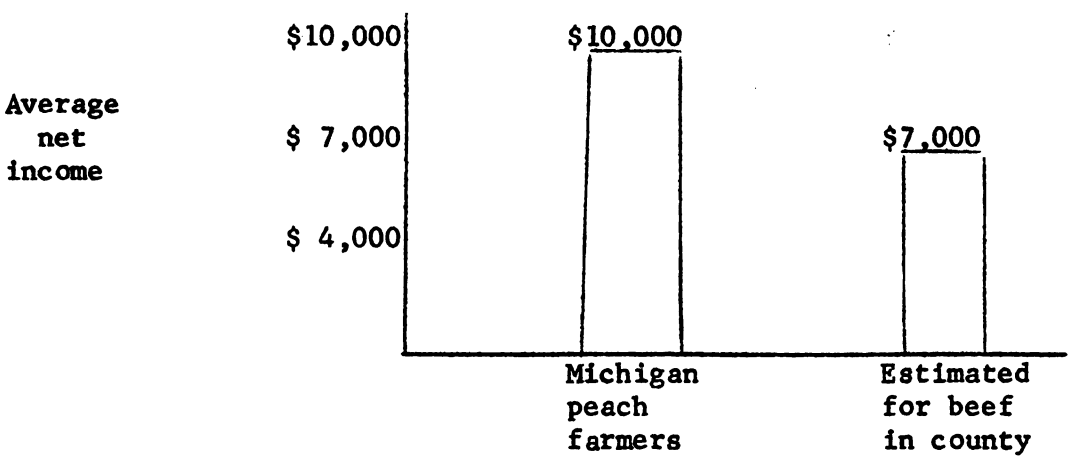
Beef cattle often make good use of grain, corn silage, and hay. Feeder operations are on the increase in many parts of Michigan.

Beef cattle have shown promise in many areas like southern Michigan where farmers want to cut down on labor because of age, off-farm jobs, or personal preferences.

Beef enterprises often do not pay off, however, where one must invest a lot in buildings and other items to start with. Further, beef-feeding tends to be risky because of changing market prices. Not every farmer has the skill and patience needed to feed cattle properly and market them at just the right time.

In deciding whether to try beef cattle, one should also take a look at potential profits. That means comparing beef with other crops and livestock--especially with those which are realistic alternatives to beef.

On the average, a good farmer could probably figure on a net income of about $7,000 per year from a 25-cow beef operation. That's about $3,000 less than the roughly $10,000 average net income earned by Michigan peach farmers of comparable size in 1965. These figures are summarized in the following graph.



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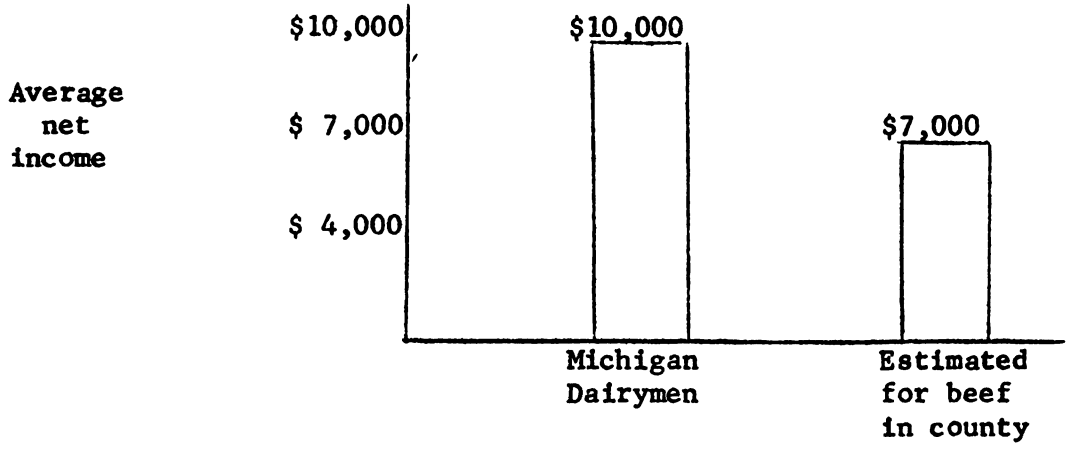

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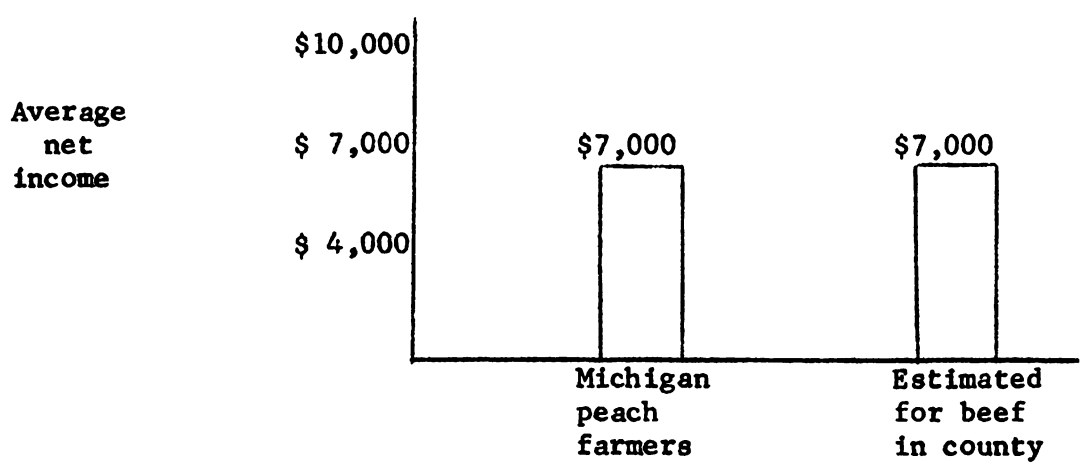

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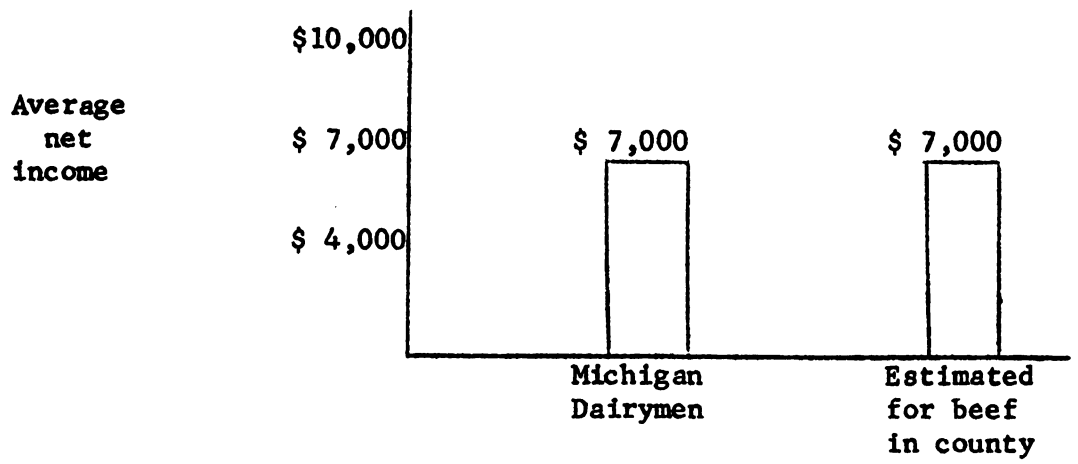

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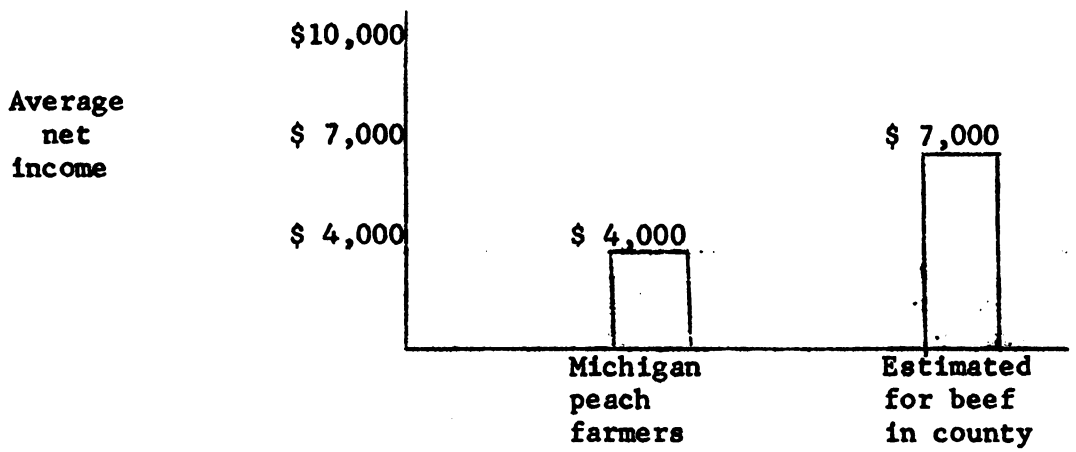

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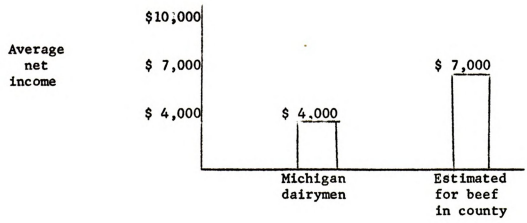

APPENDIX D

SUMMARY OF COMPETITIVENESS RATINGS BY MICHIGAN STATE UNIVERSITY FARM MANAGEMENT SPECIALISTS

	Grade A Dairy		Beef cow-calf		Beef feeder	
	Mean	Variance	Mean	Variance	Mean	Variance
Beef feeder	9.5	0.2	2.0	5.5	--	--
Swine	6.0	1.5	4.5	6.2	4.7	8.7
Sheep	7.5	0.7	9.7	0.5	7.7	5.2
Dairy (Grade A)	--	--	7.8	3.2	9.5	0.2
Dairy (Manufactured)	9.7	0.2	7.3	2.2	8.0	2.0
Laying hens	7.5	1.3	3.0	6.5	6.0	1.5
Broilers	6.2	10.7	4.2	5.7	7.8	2.2
Turkeys	6.2	10.7	4.2	5.7	7.8	2.2
Peaches	3.2	9.7	1.2	4.7	1.7	3.2
Apples	3.5	10.3	1.3	4.8	2.5	6.7
Pulpwood	0.0	0.0	0.0	0.0	0.0	0.0
Sugar beets	3.0	6.5	3.2	16.7	0.0	0.0
Cherries	3.2	9.7	1.2	4.7	1.7	3.2
Cash crop	4.2	8.2	1.0	3.0	3.5	16.8

The mean and variance within each of the 36 cells describes competitiveness assessments for the "column" enterprise, paired with the "row" enterprise. Assessments were made by five extension farm management specialists at Michigan State University.

APPENDIX E

INTER-INDEX CORRELATIONS

Index	1	2	3	4	5	6	7	8	9	10	11	12
1. Iconicity	1.00											
2. Core-Dominance	-.02	1.00										
3. Contextual Relevance	-.03	.03	1.00									
4. Reader Attitude Degree (Iconicity Analysis)	-.13	.15	-.09	1.00								
5. Reader Attitude Intensity (Iconicity Analysis)	-.02	-.08	.06	-.41*	1.00							
6. Comprehension Ability	-.00	.06	.03	.03	-.04	1.00						
7. Weighting of Experimental Portion	.05	-.07	.00	-.00	-.06	-.01	1.00					
8. Certainty of Attributed Stand (Iconicity)	-.11	-.04	.07	-.11	.36*	-.03	-.12	1.00				
9. Writer Attitude Toward Core Stand (Core-Dominance Analysis)	-.01	.05	.10	.08	.12	-.07	.05	-.02	1.00			
10. Certainty of Attributed Attributed Stand (Core-Dominance)	.02	.10	.04	-.15*	.29*	.11	.04	.36*	.07	1.00		
11. Directional Certainty (Iconicity Analysis)	.09	.00	.02	-.02	.02	-.03	.75*	-.02	.03	.03	1.00	
12. Directional Certainty (Core-Dominance Analysis)	.06	.01	.10	.04	-.09	-.08	.08	.00	.77*	.09	.06	1.00
	1	2	3	4	5	6	7	8	9	10	11	12

*Coefficients differing significantly from zero ($P < .05$; 2-alternative).