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# ***Staff Paper***

**THE EPISTEMOLOGY OF AGRIBUSINESS  
METHODS OF AGRIBUSINESS SCHOLARSHIP**

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**THE EPISTEMOLOGY OF AGRIBUSINESS:  
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10 Pages

**Abstract:** The prevailing agricultural economics epistemology of positivistic knowledge is argued to be inappropriate for the study of agribusiness. In contrast to the traditional arenas of agricultural economics study, agribusiness research should be designed to be (1) theory-building, rather than theory disconfirming, (2) capable of examining phenomena that are not readily quantifiable nor separable from context, and (3) capable of examining phenomena for which the underlying cause-and-effect structure is unstable or not given to general theory. Methods of phenomenological knowledge are much more appropriate to agribusiness research, and these methods should be adopted by agribusiness scholars and recognized for promotion and tenure purposes.

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# THE EPISTEMOLOGY OF AGRIBUSINESS: METHODS OF AGRIBUSINESS SCHOLARSHIP

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One can not examine a current list of academic openings in agricultural economics departments without being struck by the dominance of positions calling for specializations in agribusiness management. The new generation of scholars hired into these positions will need to establish strong research records as well as teaching and outreach records if they are to achieve tenure and status in the academy. How should these new hires conduct their research? How should their senior colleagues evaluate their research? These two questions are critically important if (1) agribusiness management is to be a strong sub-discipline of agricultural economics, and (2) these new hires are to be treated fairly while producing scholarship that is actually agribusiness management scholarship.

The examination of these two questions of research conduct and evaluation can be approached by considering the following hypothesis:

H: The methods of agribusiness scholarship are the same as the methods of traditional agricultural economics scholarship.

If this hypothesis can be rejected, then new hires and senior colleagues need to collaborate on new procedures for conducting and evaluating agribusiness research.

To explore this hypothesis, the article is organized as follows. First, a discussion is made of prevailing agricultural economics research methods. These methods are positivistic in nature. Second, it is shown that significant areas of research interest to agribusiness scholarship can *not* be studied by these methods. The hypothesis is rejected. Third, a legitimate alternative research method is presented that can be used to study these areas of interest. The article concludes by addressing the challenge of new, more appropriate research methods.

One final note of introduction--the issue of appropriate research methods is first and foremost an issue of epistemology. Research methods do not arise from an intellectual vacuum. They are based on specific assumptions about how researchers come to create warrantable knowledge. The study of how people know what they know is epistemology.

## **The Prevailing Agricultural Economics Epistemology of Positivism**

As evidenced by the AJAE and closely related professional journals, the prevailing academic epistemology of agricultural economists is that of positivism.<sup>1</sup> This way of knowing is inherently scientific--a method of obtaining knowledge that is objective and verifiable (Titus). **Positivistic knowledge** is derived from theory. It is learned through deduction. It is abstract in that the detail and noise of context are filtered and reduced in search of an underlying cause-and-effect structure. Positivistic knowledge aspires to be objective knowledge. It also attempts to be correspondent with actual data (Johnson), i.e., to have construct validity (Yin) and be verifiable, and it is generalizable (has external validity) within the bounds of appropriate assumptions. When positivistic knowledge is properly correspondent, generalizable, and strongly causal, it can have significant predictive power. It is, in this sense, often useful to decision makers, even if it solves no specific problem.

So central is the notion of objectivity to positivistic (and, more generally, scientific) knowledge, that some further exploration of what objectivity means is in order. Objective knowledge means in part that the knowledge has high data integrity (Bonoma), i.e., it is free of error and bias. It is this desire for data integrity that drives the academic researcher to seek statistical validity in empirical findings. Objectivity also arises in knowledge that has clarity and coherence (Johnson). Knowledge has clarity if it unambiguous. There is a unique interpretation to the knowledge, as in a just-specified econometric system. Knowledge has coherence if it follows logically from relevant theory and has no internal contradictions. Coherence and internal validity are comparable concepts. The desire for clarity and coherence drives the academic researcher toward mathematical models with well defined variables, exact identification, and controlled measurement. In fact, the greatest strength of positivistic knowledge is its clarity and coherence. Finally, knowledge is objective in part because the researcher who discovered it was objective in the search, i.e., the researcher applies the tests of clarity, coherence, and correspondence and willingly abides by the results (Johnson).

Positivistic knowledge is ultimately limited by its level of abstraction. The search for underlying structure, clarity, and coherence causes positivistic knowledge to ignore much of the detailed richness of a holistic situation. It has limited currency (Bonoma) in that its contextual relevance is low and thus its applicability to any particular situation is limited. For example, the generalizability of statistical validity has little relevance to a decision maker who must take action in a setting that resembles but does not meet the exact conditions under which the positivistic knowledge was found to hold. Although positivistic knowledge is predictive in terms of what may happen and can thus contribute to the analysis of a decision, it alone is not prescriptive in telling a decision maker how to make it happen. In sum, positivistic knowledge is not actionable precisely because its clarity and coherence does not lead to adequate detail about how and why to do specific actions. Further, positivistic knowledge is weakened if the underlying cause-and-effect structure it claims to explain is itself under change. If the structure is changing, then all insights gained from the knowledge are open to question.

## **The Relevance of Positivistic Methods to Agribusiness Scholarship**

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<sup>1</sup>There has been much philosophic debate about the meaning of positivism. However, the discussion in this section is designed to define what positivism has come to mean in economics.

With the strengths and weaknesses of positivism defined, analysis now turns to applying positivism to agribusiness. Do positivism's strengths or weaknesses predominate as an approach to agribusiness scholarship?

Bonoma provides two characteristics of research problems that are helpful in answering this question. The first characteristic is the purpose of the research. Is the research designed to build theory or disconfirm it? When theory is well developed and the key issues are precision of measurement or determination of strict causality, then positivistic knowledge is desirable. Only positivistic knowledge will result in disconfirmation or falsification. When theory is not well developed or changing and the key issues are accurate description, classification, and comparison, then positivistic knowledge has limited application. Further, positivistic knowledge is of limited help when the problem under study is ill-defined.

As a subarea of management, agribusiness faces the same research challenges of other management subareas. There is not a large body of well developed theory from which to derive hypotheses that can be statistically disconfirmed. Agribusiness needs to be in a theory-building, rather than theory-disconfirming, mode. As such, positivistic methods are of questionable value.

Bonoma's second characteristic of research problems is the phenomena of interest, and here he proposes two subcategories of concern. First, can the phenomena of interest be studied separate from their natural setting? Second, are the phenomena amenable to quantification? If the answer to both questions is yes, then positivistic knowledge and research methods are to be preferred. In this case, concerns about correspondence and prescription can be minimized, and clarity and coherence can be given primary sway. On the other hand, if the answer to either question is no, then positivism is of far less use.

The research problems of agribusiness management exhibit both characteristics of phenomena that fall outside the strengths of positivism. For example, the nature of effective practice in the strategic management of an agribusiness firm is not a quantifiable issue, but it is an important one for agribusiness researchers to examine. Likewise, if one wishes to understand the dynamics of contracting negotiations as they are evolving in the vertical coordination of agribusiness, the phenomenon can not be easily studied separate from being immersed in the full context of both parties to the negotiation.

Beyond Bonoma's two characteristics, there is one additional characteristic of the research setting that determines when a positivistic epistemology is appropriate. To what extent is the underlying causal structure stable or changing? If the structure is stable, positivistic knowledge is possible and its methods can be pursued. However, in times of significant structural change, positivistic knowledge is of very limited use.

Again, the research issues of greatest relevance to agribusiness scholars fall outside the perview of positivism. Three arguments can be made for this. First, the fundamental shifting of agricultural business structures and market arrangements, i.e., the current industrialization of agriculture, suggests that underlying structure is changing dramatically. There is at present no stable underlying structure to study. Second, research into the area of business strategy for agribusiness firms is the study of how firms can create and choose strategic alternatives that have as their fundamental motivation altering the structure of the industry in which the firms operate. When the goal of the phenomenon being studied is to alter structure, how can the phenomenon be studied with methods that assume the stability of structure? Business strategy is not amenable to positivistic study. Third, even when phenomena of interest appear stable, there may be no fundamental underlying structure to find. Long ago management researchers gave up the notion of a general

theory of management, i.e., there is no one true way to manage. The study of management only gives rise to what can be termed contingency or substantive theory (Gummesson), i.e., theory only made relevant in specific contexts. Management research seeks to define the contingent characteristics of circumstances that determine which of many alternative managerial approaches is best suited to a particular situation. Positivism is of limited use in this effort.

When the theory is strong, the phenomena are quantifiable and separable from context, and the structure is stable, positivistic epistemology and methods are appropriate if not required. However, neither the current phenomena of greatest interest to agribusiness scholars, e.g., the industrialization of agriculture, nor management generally are amenable to the positivistic approach. The hypothesis that agribusiness research methods and traditional agricultural economics methods are the same must be rejected.

### **An Alternative Epistemology: Phenomenological Knowledge**

In the prior section, it was shown that across a broad spectrum of agribusiness research issues positivistic methods are not appropriate to their study. But having established this does not complete the argument. If no alternative epistemology exists to study this spectrum of research issues, then the issues are simply not researchable and agribusiness scholars must content themselves with issues that are amenable to positivistic methods.

An established alternative to positivism does exist even though it tends to go by a rather diverse set of names. This alternative has sometimes been called hermeneutics (Gummesson; Jankowicz) as well as naturalistic inquiry, social constructionism, and new paradigm inquiry (Easterby-Smith, Thorpe, and Lowe); Schon has dubbed it reflection-in-action knowledge; it encompasses much of what is referred to as qualitative research methods (Jankowicz; Cassell and Symon; Easterby-Smith, Thorpe, and Lowe; Ghauri, Gronhaug, and Kristianslund); and, it has at least some intellectual ancestry in philosophical pragmatism (Johnson). It appears to be best described as phenomenological knowledge (Cassell and Symon; Easterby-Smith, Thorpe, and Lowe) which is the term adopted here.

At the heart of **phenomenological epistemology** is the notion that the phenomena of interest can not be separated from their context. To study human phenomena, the researcher must understand the holistic nature of the situation that created it. Behavior and context are fundamentally interdependent. In this view, reality is socially constructed by the actors involved in the phenomena. To understand the phenomena, the researcher must understand the meanings and motivations of the actors. As Easterby-Smith et al. put it:

“One should therefore try to understand and explain why people have different experiences, rather than search for external causes and fundamental laws to explain their behavior. Human action arises from the sense that people make of different situations, rather than as a direct response from external stimuli.” (p. 24)

Phenomenological knowledge can be thought of as being learned through reflecting upon action. It is built upon making explicit what decision makers know implicitly; and, by making it explicit, the knowledge can become more objective rather than merely subjective. Phenomenological knowledge arises from “subjecting to critique and testing the strategies, assumptions, or problem-settings implicit in a whole

repertoire of situational responses.” (Schon, p.31) Besides striving for this type of objectivity, phenomenological knowledge has concreteness because it is grounded in the complexity of actual action.

Phenomenological knowledge is derived from an iterative process that is both inductive and deductive. The academic researcher must observe the actual situation and the actions taken. To these observations, the researcher attaches meaning through classification and comparison based on existing theory and/or the logic of the situation itself. The researcher forms a tentative hypothesis about the action, its causes, and its results. This hypothesis can then be tested against other decision situations. Subsequent testing will determine whether the hypothesis holds, needs to be modified, or abandoned. This is what Bonoma calls the theory/data/theory revision cycle that he recommends to drive the process of case research. It is also akin to some of the defining characteristics of qualitative research in which the researcher seeks “to formulate new hypotheses and alter old ones as the research progresses, in the light of emerging insights.” (Cassell and Symon, p. 4)

Decision makers themselves often engage in such an iterative process in real time. Schon gives an example of how a decision maker engages in action, is surprised by the results of the action, and instantly restructures his or her understanding of the situation. “On the basis of this restructuring, he invents a new strategy of action and tries out the new action he has invented, running an on-the-spot experiment whose results he interprets, in turn, as a ‘solution,’ an outcome on the whole satisfactory, or else as a new surprise that calls for a new round of reflection and experiment.” (p. 30) The academic researcher can make this process explicit, expand it to multiple situations, and bring theory and objectivity to the iterative process.

Phenomenological knowledge is scientific. Its Kantian cycle of induction, deduction, and verification is a form of the scientific method (Kenema, Titus). Phenomenological knowledge is abstract in that it is articulated in the medium of words and ideas. It can meet the criteria of objectivity, clarity, coherence, and data integrity. However, the degree to which it meets these criteria differs from positivistic knowledge. Clarity arises from careful description, classification, and comparison of observed situational phenomena rather than from precise definitions and measurements. Thus clarity is qualitatively achieved (based on experience) rather than quantitatively. Coherence arises by bringing logical order to the phenomena observed either by applying existing theory or laying bare the inherent order of the situation itself in new theory. Data integrity arises from triangulation (Bonoma, Cassell and Symon, Yin) of many sources of perceptual and actual data about the phenomena being observed. Objectivity arises from the clarity, coherence, and data integrity already mentioned, and in addition from the skilled eye of the academic observer who orders the phenomena in the context of new or existing theory.

But is phenomenological knowledge generalizable given its grounding in particular situations? Different writers who support phenomenological methods have approached this issue from different, but complementary points of view. Schon argues that the results of such methods “. . . can be generalized to other situations, not as covering laws<sup>2</sup> but through what I call ‘reflective transfer,’ that is, by carrying them over into new situations where they may be put to work and tested, and found to be valid and interesting, but where they may also be reinvented.” (p. 31) Phenomenological knowledge is carried over to new situations that are perceived to be similar to the ones from which the knowledge was derived. The application of the knowledge is tentative (not deterministic as positivistic knowledge claims to be). The

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<sup>2</sup>By covering law Schon means “a general, perhaps statistical, proposition applicable to all instances in which certain combinations of variables are present.” (p. 31)



dynamic nature of theory based on phenomenological knowledge opens options for the transfer of knowledge among situations that are not strictly alike. Positivistic knowledge is less transferable to a new situation or problem when its much narrower contextual relevance is invalid.

Yin argues that thinking of generalizing case findings, a type of phenomenological knowledge, is not the same as statistical generalization which is the foundation of external validity for positivism. Rather, case studies, as with experiments in the natural sciences, rely on *analytical* generalization in which the researcher is striving to generalize a particular set of results to some broader theory. A single case can establish the relevance of an concept that can then be used to examine other cases to determine the concept's breadth of application.

Although presenting arguments about generalization that reinforce both Schon and Yin, Gummesson goes on to question just how much weight should be placed on generalization as a criterion. The development of local theory that has application to particular situations has value in and of itself even if broad generalization is not possible. The situation adds new richness to the understanding of possible behaviors and responses. He concludes, "As long as you keep searching for new knowledge and do not believe you have found the ultimate truth--rather the best available for the moment--the traditional demand for generalization becomes less urgent." (p. 86-86)

To a strict adherent of positivistic epistemology, the objectivity and generalizability of phenomenological knowledge may appear questionable. Based on the complexity and ambiguity of real decisions, phenomenological knowledge will never achieve the level of clarity or coherence of positivistic knowledge. However, the tradeoff is heightened correspondence and improved prescription. Phenomenological knowledge is actionable in that the richness of context can be largely preserved while some level of abstraction (and thus objectivity) is sacrificed.

The final relevant point about phenomenological knowledge for this presentation is that the inherent dynamism of this approach to knowing makes it highly useful in times of change. Phenomological methods can be used even if the underlying structure is not stable. Working hypotheses can be readily altered and expanded in order to maintain correspondence with the emerging conditions. The methods of phenomenological knowledge, in this sense, reflect the claims of Cassell and Symon for qualitative methods:

"Only qualitative methods are sensitive enough to allow the detailed analysis of change. In organizational research organizational dynamics and change are major areas of interest. With quantitative [positivistic] methods we may be able to assess that a change has occurred over time but we cannot say how (what processes were involved) or why (in terms of circumstances and stakeholders). Qualitative methods are sensitive to issues of this kind." (p. 5)

The differences between positivistic and phenomenological knowledge are presented in the accompanying table (the first three rows are most relevant to the arguments made to this point). In contrast to positivistic knowledge, phenomenological knowledge finds its greatest applicability to research settings in which established theory is weak or nonexistent, the phenomena of interest are not readily quantifiable nor separable from context, and the underlying cause-and-effect structure is unstable or not given to general theory. By the examples of the prior section of this paper, the current phenomena of greatest interest to agribusiness scholars (e.g., the industrialization of agriculture) and to management generally are thus

amenable to the phenomenological approach. The hypothesis that agribusiness research methods and traditional agricultural economics methods are the same can be safely rejected because a legitimate alternative exists.

## **The Challenge of New Ways to Conduct and Evaluate Research**

How then does one conduct and evaluate research that creates phenomenological knowledge? The final five rows of the comparative table attempt to provide a starting point for answering this question although it is beyond the scope of this paper to answer this question definitively.

First, the preferred methods of conducting phenomenological research include, but are not limited to, case studies, archival analyzes, semi-structured or fully-structured interviews and surveys, field experiments, critical incident analyzes, repertory grid techniques, cluster analysis, factor analysis, and conjoint analysis. The earlier entries in this list are largely qualitative, but the latter entries involve a fair amount of quantitative analysis even if it is quantitative analysis of qualitative (often categorical) data. Rather than define and elaborate on each of these techniques here, the author simply wants to establish that these techniques exist and have a supporting literature of their own for researchers who wish to use them. (See the reference list at the end of the article for a start on where to find this literature.)

Second, the evaluate of phenomenological research can involve the same validity and reliability concepts as positivistic research. However, the standards of assessment against these concepts differs between the two approaches. Construct validity, internal validity, reliability and external validity can be achieved for phenomenological approaches, and the key questions related to assessing each of these is presented in the table. But, these questions hardly form a rigorous assessment regime. Agribusiness scholars bear a responsibility to define an appropriate level of rigor for phenomenological knowledge and its methods. Just because phenomenological knowledge can not achieve the degree of clarity and coherence of positivistic knowledge, it is not excused from seeking appropriate clarity and coherence. Most especially, researchers should focus on high correspondence and effective prescription as standards by which phenomenological knowledge is judged. In addition, data integrity must be a critical concern and should be based on (1) proper triangulation of perceptual, financial, market, and macroeconomic data, and (2) appropriate precautions against researcher bias arising from close interaction with decision makers. Furthermore, we must find reasonable ways to signal in journal articles and other scholarly writings that the standards of phenomenological rigor were known and followed by the author. This will not be easy since the more qualitative nature of phenomenological knowledge necessitates lengthy output that may strain standard editorial standards for article length or the reader's patience in wading through the material (Cassell and Symon). A corollary to this point is that the reviewers for our journals must accept the legitimacy of phenomenological methods and be prepared to provide appropriate critique.

**Table: Comparative Characteristics of Phenomenological and Postivistic Knowledge**

<b>CHARACTERISTICS OF KNOWLEDGE</b>	<b>PHENOMENOLOGICAL KNOWLEDGE</b>	<b>POSITIVISTIC KNOWLEDGE</b>
<b>Basic Philosophy:</b>	The world is socially constructed. Observers are part of situation.  Science is driven by human interests.	The world is external and objective. Observers are independent of situation.  Science is value-free.
<b>Researcher Goals:</b>	Focus on meanings. Try to understand happenings. Look at the totality of each situation.  Develop ideas through induction from data. Develop “local” theory.	Focus on facts. Seek causality & fundamental laws. Reduce situation to simplest elements. Formulate hypotheses and then test them. Develop “general” theory.
<b>Applicable Research Setting:</b>	Theory construction Phenomena need not be quantifiable Phenomena not separable from context Unstable or nonexistent structure	Theory confirmation Quantifiable phenomena Phenomena separable from context  Stable underlying structure
<b>Preferred Methods:</b>	Using multiple methods to establish different views of phenomena. Small samples investigated in depth or over time.	Operationalizing concepts so that they can be measured. Taking large samples.
<b>Construct Validity</b>	Has the researcher gained full access to the knowledge and meaning of informants?	Does an instrument measure what it is supposed to measure?
<b>Internal Validity (Clarity and Coherence)</b>	Has the researcher uncovered the logic of the phenomena observed either by applying existing theory or laying bare the inherent order of the situation itself in new theory?	Has the researcher properly deducted and tested the hypothesis?
<b>Reliability (Data Integrity)</b>	Will similar observations be made by different researchers on different occasions? Has triangulation of data been appropriately handled?	Will the measure yield the same results on different occasions (assuming no real change in what is to be measured)?
<b>Generalizability (External Validity)</b>	How likely is it that ideas and theories generated in one setting will also apply in other settings?	What is the probability that patterns observed in a sample will also be present in the wider population from which the sample is drawn?

Source: Rows 1, 2, 4, 5, 7 and 8 are adapted from Easterby-Smith et al.

A great challenge lies before all of us who want agribusiness management to be an appropriately rigorous sub-discipline of agricultural economics. Much work must be done to define agribusiness research methods and standards, to develop journals of high quality, and to have departmental, college, and university colleagues and administrators accept these methods and standards as legitimate for faculty promotion and tenure.

Beyond this, however, we need to recall that nothing has been said herein that should be construed as a rejection of positivistic methods when they are appropriate. When the theory is strong, the phenomena are quantifiable and separable from context, and the structure is stable, positivistic epistemology and its methods are legitimate. Further, phenomenological insights can enhance positivistic theories and methods in order to improve their correspondence to the world we encounter. Broad collaboration across methods is required, and not intellectual warfare. To promote collaboration, an important quid pro quo is needed. Our positivistic peers must understand that we cannot mimic their positivistic knowledge because it removes us from the context in which actual agribusiness decisions must be made. In return, we must strive to retain our commitment to science and to a research rigor that is appropriate to phenomenological knowledge.

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