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AMS Review
Official Publication of the Academy of Marketing Science

ISSN 1869-814X

AMS Rev
DOI 10.1007/s13162-015-0064-x

Springer

AMS Rev
DOI 10.1007/s13162-015-0064-x

THEORY/CONCEPTUAL

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Received: 16 October 2014 / Accepted: 6 March 2015

Abstract The inductive realist model of theory generation (Hunt, *AMS Review, 3*(2), 61–73, 2013) proposes a process model of theory generation that links discovery and justification. This article further explicates the inductive realist model of theory generation by addressing the major issues that marketing academics have raised. Specifically, this article provides answers to six of the most commonly asked questions. (1) Why is the model called "inductive realist"? (2) Is the real world of theory generation as linear as the model depicts? (3) Is the model positive or normative? (4) How does the model relate to the "theory-in-use" approach? (5) Is the model a testable, causal model? (6) Does all "problem recognition" start with "current disciplinary knowledge"?

Keywords Philosophy of science · Scientific realism · Inductive realism · Scientific discovery · Theory development

The inductive realist model of theory generation (Hunt 2013) proposes a process model of theory generation that links discovery and justification. The model (1) extends the inductive realist model of theory *status* (Hunt 2011, 2012), (2) incorporates the works of the "friends of discovery" in the philosophy of science (e.g., Nickles 1980), (3) maintains that discovery processes are best viewed as involving creative cognitive acts, constraints, and reasoning processes that parallel those found in the context of justification, and (4) contributes to understanding the process by which a theory of ethics was developed, that is, the ethics theory originally proposed in Hunt and Vitell (1986).

Since the article's publication, marketers at conferences and elsewhere have raised numerous issues with respect to the inductive realist (hereafter "IR") model. The purpose of this article is to further explicate the IR model of theory generation by addressing the major issues that marketing academics have raised. Specifically, this article provides answers to six of the most commonly asked questions. (1) Why is the IR model called "inductive realist"? (2) Is the real world of theory generation as linear as the model depicts? (3) Is the IR model positive or normative? (4) How does the model relate to Zaltman, et al.'s (1982) "theory-in-use" approach? (5) Is the IR model a testable, causal model? (6) Does all "problem recognition" (Box 2 in the model) start with "current disciplinary knowledge" (Box 1 in the model)?

First, this article provides a brief overview of the IR model of theory generation. I then address each of the six questions in turn. Throughout the discussion, I will use examples from the resource-advantage (R-A) theory of competition (Hunt 2000; Hunt and Morgan 1995) as a continuing example to illustrate issues in the model.

Overview of the IR model

Figure 1 shows the IR model of theory generation. In brief, the model proposes that the process of developing new theory begins with a scholar (or group of scholars) recognizing that some problem (shown as Box 2) exists within the theories (concepts, lawlike generalizations, models, etc.) that constitute current disciplinary knowledge (Box 1). Readers should note carefully three things about Box 1. First, in order for

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Published online: 03 April 2015

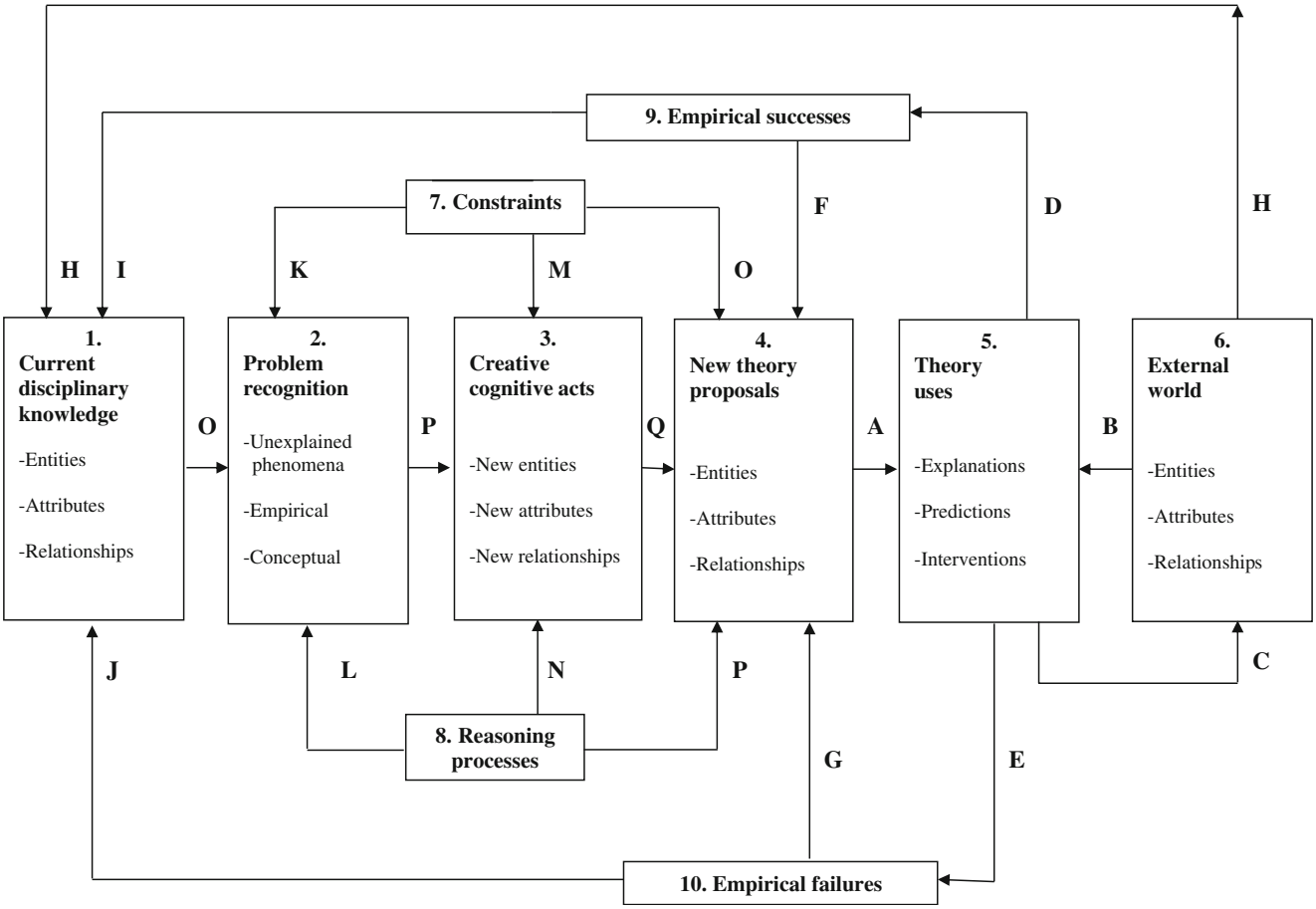

Fig. 1 The Inductive Realist Model of Theory Generation. Copyright © 2012 by Shelby D. Hunt. Reprinted by permission

scholars to recognize that a problem exists within the current disciplinary knowledge, they must first *know* the content of current knowledge. Therefore, in this sense (but not in the "triggering cue" or starting point sense), current disciplinary knowledge (Box 1) is modeled as *preceding* problem recognition (Box 2). (More on the "starting point" for theory development later in this article.) Second, the theories, models, etc., that constitute "current disciplinary knowledge" (Box 1) and "new theory proposals" (Box 4) are to be interpreted as linguistic expressions that are labels for what is proposed to exist in the external world (Box 6). Third, the "entities," "attributes, " and "relationships" in Boxes 1 and 4 refer to prototypical examples of the types of linguistic expressions found in theories and models. In contrast, the "entities," "attributes," and "relationships" in Box 6 (external world) refer to the actual, existing "furniture" of the world.

For example, with respect to resource-advantage (R-A) theory, the theory identifies several linguistic entities (e.g., the concepts or constructs of "firms," "customers," and "resources") that are posited to refer to actually existing entities in the real world of competition (Box 6). Furthermore, for R-A theory, firm resources are posited to have *attributes*, such as being significantly heterogeneous and imperfectly mobile (Hunt 2000). Moreover, for R-A theory, firms are posited to have *relationships*, such as R-A theory positing that competition is "a constant struggle among firms for comparative advantages in resources that will yield marketplace positions of competitive advantage for some market segments(s) and, thereby, superior financial performance" (Hunt 2000, p. 138). Therefore, the "competition relationship" that would be identified in Boxes 1 and 4 of R-A theory would be posited to *refer* to actual competition in the real world (Box 6).

Returning to our overview of Fig. 1, as one link to the process of justification, the empirical successes (Box 9) and empirical failures (Box 10) of extant knowledge contribute to problem recognition. Problem recognition is guided and influenced by particular constraints (Box 7) that are idiosyncratic to the "problem-solution being sought" (Nickles 1980, p. 10). For example, in developing R-A theory, Robert Morgan and I believed it was important that the foundational premises of our theory be both succinct and descriptively accurate of real world competition. This belief constrained us in the type of theory that would be developed.

Problem recognition is also guided by reasoning processes (Box 8) that parallel those typically associated with the context of justification. Examples of such inference processes

include deductive, inductive, and analogical reasoning (Schaffner 1974). The IR model posits that the process of discovery involves creative cognitive acts (Box 3) that follow problem recognition (Box 2) and precede new theory proposals (Box 4). But these creative cognitive acts by a scholar or group of scholars—though being *creative*—are not well described as being "irrational" (Popper 1959, p. 32), or "instinctive guessing" (Reichenbach 1944, p. 67), or algorithmic (Zytkow and Simon 1988). Rather, for the IR model, the creative cognitive acts are better described as resulting from insightful, constrained reasoning processes.

Consistent with the inductive realist model of theory *status* (Hunt 2011, 2012), Box 5 shows that theories are used to provide explanations and predictions, as well as to guide interventions in the world (e.g., to guide a firm's choice of marketing strategy). The external world (Box 6) influences the outcomes that are deemed to be empirical successes (Box 9) and failures (Box 10) of the theories proposed, as well as the current state of disciplinary knowledge (Box 1). That is, the world of, for example, actual competitors and customers influences the successes and failures of interventions guided by the theories that are major components of current disciplinary knowledge.

With the preceding overview in mind, we can now address the six questions. The first question concerns the label used to describe the IR model.

Why is the model called "inductive realist"?

As to the rationale underlying the "inductive realist" label, the use of this label does *not* stem from the view that all or even most theories are (or should be) induced from sifting through large quantities of data ("Big Data"), searching for empirical regularities that can be combined to form theoretical constructions. Rather, the "inductive realism" label stems from other sources. The best way to understand the genesis of the "inductive realist" label is to first explain how the IR model is *realist* and then discuss how it is *inductive*.

As to why the model is *realist*, the modern-day, realist approach to the philosophy of science traces to the early twentieth-century realism of Moore (e.g., 1903) and Russell (e.g., 1929) and its central premise that the external world exists unperceived. Moore and Russell's realism, labeled "classical realism" in Hunt (1990), was designed to refute Hegelian idealism and its view that "all reality is mental (spiritual, psychical). Matter, the physical does not exist" (Angelas 1981, p.120).[1] Therefore, note that Box 4 in the model (which is comprised of linguistic expressions, that is, theories) is proposed to be *about* entities in Box 6 that are external to the theories. The proposed relationship between Boxes 4 and 6 provides warrant for the "realist" part of "inductive realist." Also, note that path B, from Box 6 to Box 5, is distinctively realist because—contrasted with philosophical subjectivism—it implies that features of the world external to the theory influence a theory's successful (Box 9) and unsuccessful (Box 10) explanations, predictions, and interventions.

As to why the model is labeled the *inductive* realist model of theory generation, readers should note that there are almost as many types of modern realism as there are modern realist philosophers of science. For example, there is the transcendental realism of Bhaskar (1979, 1986, 1993, 1998), the ontic realism of MacKinnon (1979), the methodological realism of Leplin (1984, 1986, 1997), the critical realism of Sayer (1992), the evolutionary, naturalistic realism of Hooker (1985), the referential realism of Harré (1986), the critical scientific realism of Niiniluoto (1999), and the constructive realism of Giere (1985). Nonetheless, the label "scientific realism" is often used as an umbrella term to include many of the specific versions of realism.

The fundamental tenet of scientific realism is that "the long-term success of a scientific theory gives reason to believe that something like the entities and structure postulated by the theory actually exists" (McMullin 1984, p.26). Because McMullin's reasoning process in his statement of the fundamental tenet is inductive in nature (i.e., McMullin inductively reasons from instances of success to his "something like" thesis), Hunt (1990) labeled the tenet "inductive realism." Therefore, because the IR model of theory generation incorporates the inductive realism tenet, the label "inductive" is included in the model's title. Also, as to why the "inductive" label, readers should note that the starting point for the IR model of theory generation was the model in Hunt (2011, 2012), which used the "inductive realist" label.

Finally, part of the confusion about the model probably stems from the fact that Boxes 1, 4, and 6 in the model all include "entities," "attributes," and "relationships." As previously discussed, the difference—which is a realist difference—is that the use of "entities," etc., in Boxes 1 and 4 refers to linguistic expressions, whereas the use of "entities," etc., in Box 6 refers to features the world that are referred to by the linguistic expressions in Boxes 1 and 4. That is, unlike relativism/constructionism, scientific theories "touch base" with nonlinguistic aspects of the world, which draws on the classical realist view that the external world exists independently of its being theorized about.

Is the real world of theory generation as linear as the IR model depicts?

All models (e.g., verbal and mathematical models), by definition, are *representations* of something else. The IR model of

[1] See Hunt (2003) for a detailed discussion of the evolution of realist philosophy of science. See Hunt (2005) for a succinct overview.

theory generation purports to represent (1) the essence of the steps or stages in the process of theory development, (2) the timing of the stages, and (3) key factors that influence the stages. The model uses linguistic expressions, boxes, and arrows to depict or represent the stages, timing, and directions of influence. All *good* models are complex enough to accurately represent the phenomenon, but not so complex that they become unwieldy. That is, good models are not just representations; they are parsimonious representations.

The IR model depicts time as flowing from left to right, from current disciplinary knowledge (Box 1) through to theory uses (Box 5), with several feedback arrows, including those from the external world (Box 6), empirical successes (Box 9), and empirical failures (Box 10), flowing back to current disciplinary knowledge (Box 1). Although the IR model shows theory generation as unfolding in a linear fashion from Box 1 through Box 5, the real world of theory development is, no doubt, not nearly as linear as the model depicts. Indeed, in the real world of theory generation, there is often feedback from every single stage to every other stage. As Zaltman, LeMasters, and Heffring (1982, p. xii) put it, "theory construction is not a linear, … orderly process." That is, the real world of theory generation is an extraordinarily iterative process. However, in my view, the proposed IR model of theory generation is complex enough to capture the major stages and feedback effects, while being parsimonious enough to (1) be useful in understanding the process of theory generation and (2) serve as a (rough) guide for those scholars seeking to develop new theories.

Is the IR model positive or normative?

The positive/normative dichotomy is a major part of the three dichotomies model that was first proposed in Hunt (1976) (the other two dichotomies were micro/macro and profit sector/nonprofit sector). The three dichotomies model is a general, taxonomical framework that purports to categorize the phenomena, issues, topics, theories, and research that are within the scope of the marketing discipline. Historically, the positive/normative dichotomy traces to the work of David Hume (1711–1776), who is credited with being the first philosopher to point out that statements concerning the verb "is" are different in kind from statements containing the verb "ought." In particular, Hume observed that no set of statements containing only descriptive terms and no copula except "is" can logically yield a conclusion containing an "ought." The positive/normative dichotomy is the version of Hume's "is/ought" dichotomy discussed in John Neville Keynes's (1891) classic work, *The Scope and Method of Political Economy*. There, Keynes defined a positive science as "a body of systematized knowledge concerning what is" and a normative science as "a body of systematized knowledge discussing criteria of what ought to be" (pp. 34–35).[2]

The IR model of theory generation may be viewed as strongly positive and weakly normative. That is, the model is strongly positive in the sense that it aims to identify the major stages or steps in theory generation, the sequencing of the stages, and the major feedback loops in the theory generation process. Indeed, the model has been shown to do a good job of describing the actual process of the development of the ethics theory originally proposed in Hunt and Vitell (1986).

In contrast, the IR model is weakly normative in the sense that it *may* be helpful to those who seek to develop new theories. Though there is no *algorithm* for developing new theories, there is, nonetheless, some systematicity to the theory generation process. Indeed, the developing view in works authored by the "friends of discovery" in the philosophy of science is that there are, at a minimum, some useful guidelines for developing theories. Although "is" does not *imply* "ought, " understanding how past theories were developed, especially *successful* theories, may be a useful place to start in understanding how to develop new theories. Supporting this view is the fact that several scholars have indicated that they have found the IR model useful in providing guidance in their own efforts at developing theory. Therefore, the IR model is weakly normative.

How does the IR model relate to the "theory-in-use" approach?

Zaltman, LeMasters, and Heffring's (1982) "theory-in-use" approach draws heavily on the "grounded theory" of Glaser and Strauss (1967) and the discussion of "theories-in-use" by Argyris and Schon (1974). For Zaltman, LeMasters, and Heffring (1982, p. 113), "the basic message we want to convey is that people's 'theories' about their own behavior may offer special insights to the researcher that other approaches do not yield." Therefore, the very first step in their twelve-step procedure is: "Identify appropriate theory holders. A theory holder is a person or group of people who are *effective* practitioners in the context of concern" (p. 127, italics added). After they identify appropriate theory holders, researchers are then advised to observe or interview an effective practitioner, develop principles and concepts that govern the practitioner's behaviors, and identify linkages among the concepts and principles to provide a theoretical "map" of the theory holder. After mapping several effective practitioners, researchers should develop a synthesis and compare it with the theory maps of *ineffective* practitioners (using the same procedure).

[2] See Hunt n2010, pp. 30–38) for a more complete discussion of the positive/normative dichotomy.

The IR model of theory generation and Zaltman et al.'s (1982) theory-in-use approach share some major commonalities, but they also have several important differences. The following four commonalities illustrate their strong affinities. First, readers should note that Zaltman et al.'s procedure starts with identifying effective practitioners in the "context of concern." The IR model provides an answer to the question of what prompts researchers to identify a *particular* context of concern and what guides researchers in identifying *effective* practitioners. That is, problem recognition (Box 2) in the IR model is a necessary precursor of describing the content of the context of concern and for guiding the selection of effective practitioners. Second, the IR model describes theory generation as a thoroughly reasoned (Box 8) process. Similarly, the Zaltman et al. approach devotes an entire chapter (Chapter 5) to discussing the role of inductive and deductive reasoning in theory generation. Third, the IR model stresses the role of both perceived and unperceived constraints (Box 7). Similarly, the Zaltman et al. approach highlights the importance of recognizing "perceptual blocks" (p. 7), "intellectual blocks" (p. 11), and "frames of reference" (p.21) as particular constraints in generating theories. Fourth, the IR model stresses the importance of the series of creative cognitive acts (Box 3) that follow problem recognition (Box 2) and precede theory proposals (Box 4). Likewise, Zaltman et al. caution their readers that "the discussion thus far may suggest that the researcher has little opportunity for creative value added in developing theories-in-use" (p. 137). They add that "it would be unfortunate if the researcher did not go beyond simple journalistic reporting or only assumed the role of translator" (p. 138). Therefore, both the IR model and Zaltman et al. stress the role of creativity in theory generation.

As to major differences between the IR model and the Zaltman et al. approach, I address three key ones. First, recall that the IR model is strongly positive and weakly normative. First and foremost, the IR model purports to describe the process of developing theories in science. In contrast, the Zaltman et al. approach is strongly normative and weakly positive. The 12 steps in the Zaltman et al. approach are specifically put forth as a guide for developing a particular kind of theory, that is, a theory based on the experiences of effective practitioners in an area of concern. Therefore, the Zaltman et al. approach is strongly normative. To the extent that researchers actually follow their normative 12 steps, it becomes weakly positive (descriptive).

Second, the Zaltman et al. approach is a procedure that is primarily aimed at developing theories as to how practitioners should go about solving their problems. That is, it is a normative procedure for developing normative theories. Indeed, Zaltman et al.'s major, illustrative example of their procedure involves how to engage in new product design, and a key step was "we asked the designer what rules of thumb he would *prescribe* if he were a guest speaker before a group of students in an introductory course in industrial design" (p. 128, italics added). In contrast, the IR model is a positive model that focuses primarily on the development of positive theories that explain and predict phenomena. However, readers should note that Box 5 in the IR model shows that the ways theories are used include not just explanations and predictions, but interventions as well. That is, positive theories, by telling us how the world works, can guide interventions that aim to make the world work (in some way) *better*. In this way, positive science is linked to normative of science.

Third, the Zaltman et al. approach is narrowly positioned as providing suggestions for developing one particular type of normative theory. Thus, Zaltman et al. caution readers that "the theory-in-use approach is just one approach and should not be used to the exclusion of others" (p. 138). In contrast, the IR model is positioned as a positive, general model of the process theory generation in science. Indeed, because of the similarities discussed above, it can be argued that, to the extent that researchers actually adopt the Zaltman et al. procedure, the IR model accommodates or incorporates the narrow Zaltman et al. approach to theory generation.

Is the IR model a testable, causal model?

This question is actually two questions. First, is the IR model a causal model? Second, is the model testable? As to the first question, the IR model is a process model, not a causal model. The major stages in the process of theory generation, according to the IR model, go from problem recognition to creative cognitive acts to new theory proposals. It is not the case that the model claims that problem recognition *causes* creative cognitive acts, which *cause* new theory proposals. Therefore, the IR model is not causal.

As to whether the IR model is testable, if by "testable," one means, for example, the process of creating measures of each concept, gathering data from informed respondents (i.e., theory developers), and analyzing the data by means of a structural equation model approach, complete with measures of goodness of fit and the significance of paths, the answer is "no." As discussed in the preceding paragraph, the IR model is a process model, not a causal model. However, if "testable" is used in a broader sense, the answer is "yes." In this broader sense, "testable" incorporates what might be called various forms of "evidentiary support." That is, using a qualitative research design that results in identifying empirical evidence that is consistent/inconsistent with the model may also be considered as theory "testing." For example, the fact that the IR model has been used successfully to contribute to the understanding of the development of the theory of ethics originally proposed in Hunt and Vitell (1986) provides empirical evidence in support of the truth-content of the IR model. Furthermore, to the extent that the IR model is used in the

future to contribute to understanding case histories of the development of other theories, then it may be claimed that there is significant, evidentiary support for the model.

Also, as to the "testable" question, despite the fact that the IR model is not a causal model, it could be the case that the linkages in the IR model might prompt researchers create specific hypotheses that would be "testable" in the sense that the word is often used in science, that is, in the sense of conducting studies that report findings and significance levels. If so, then the empirical testing of such hypotheses would provide further evidentiary support for the overall IR model.

Finally, readers should note that the preceding discussion of "testable" is consistent with Siegel's (1985) succinct description of the scientific method. As Siegel (1985, p. 528) explains, the scientific method can be best expressed as a "commitment to evidence," as exemplified by a "concern for explanatory adequacy, however that adequacy is conceived; and insistence on testing, however testing is thought to be best done; and a commitment to inductive support, however inductive inference is thought to be best made." Readers should note the phrase "however testing is thought to be best done."

Does all "problem recognition" start with "current disciplinary knowledge"?

As the IR model shows, Box 1, "current disciplinary knowledge," precedes Box 2, "problem recognition," because, as previously discussed, in order to recognize that a problem exists in a discipline's knowledge base, a scholar must know the status of current disciplinary knowledge. Also, as previously discussed, time flows from left to right. Therefore, some readers have interpreted the IR model as implying that the process of problem recognition in science begins with the current state of the discipline's knowledge, which is not how the model should be interpreted. Specifically, the model should not be interpreted as implying that the triggering cue for recognizing disciplinary problems is the current state of the discipline's knowledge. Indeed, the triggering cue for a scholar recognizing that a problem exists can come from many different sources, including, for example, noticing an empirical failure of a current theory or reading an academic article that proposes a theory in one domain, which then suggests to a scholar that the theory might be useful in explaining some phenomenon in another domain.

In short, the IR model does not imply that the current state of the discipline's knowledge is a triggering cue for the process of problem recognition. Rather, the IR model points out that some claimed deficiency in current disciplinary knowledge will be recognized by an academic discipline's scholars as constituting a *problem* for the discipline (and, therefore, be worth working on) when some scholar or group of scholars can successfully argue that the current state of disciplinary knowledge does not *satisfactorily* address some particular issue related to the claimed deficiency. For example, economists have long recognized that the foundational premises underlying neoclassical perfect competition are not descriptively accurate, but this deficiency is deemed not to be a problem in neoclassical economics because, it is claimed, theories are not to be evaluated on the basis of the descriptive accuracy of their premises, but only by the accuracy of theories' predictions. As Friedman's (1953, p. 10) famous essay put it:

> In so far as a theory can be said to have "assumptions" at all, and in so far as their "realism" can be judged independently of the validity of predications, the relation between the significance of a theory and the "realism" of its "assumptions" is almost the opposite of that suggested by the view under criticism. Truly important and significant hypotheses will be found to have "assumptions" that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions (in this sense)…. To put this point less paradoxically, the relevant question to ask about the "assumptions" of a theory is not whether they are descriptively "realistic," for they never are, but whether they are sufficiently good approximations for the purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficient accurate predictions.

The preceding discussion of the meaning of "problem recognition" and our example from economics have implications for scholars attempting to craft manuscripts that will be favorably received by an academic journal's reviewers. One implication is that a scholar proposing a new theory must argue carefully (Box 8) why it is the case that the issue or issues addressed in the new theory solve not just a deficiency in the discipline's current theories, but a deficiency that is (or, perhaps, should be) recognized by the scholars in the discipline as a genuine problem. If the problem is not currently recognized as genuine, then the author of the new theory must convince reviewers that the problem *should be* recognized as genuine. If the reviewers of a journal do not agree that the issues addressed by the new theory are genuine problems for the discipline, then the manuscript proposing the new theory has little or no chance of acceptance.

For example, with respect to R-A theory and the discussion in the preceding paragraph concerning the descriptive accuracy of the premises of neoclassical, perfect competition theory, the IR model explains why one finds the following discussion at the beginning of the introductory chapter of Hunt (2000, p. 3):

> However, let there be no misunderstanding: R-A theory does not criticize neoclassical theory for its "unrealistic"

assumptions. Indeed, it accepts the view that good theories, among other things, should explain and predict phenomena. Instead, the claims advanced here are that (1) R-A theory explains and predicts certain economic phenomena better than neoclassical theory and (2) R-A theory explains its empirical success on the basis of its more descriptively realistic premises, that is, its foundations are *closer*.

Readers should note that the preceding argues that even if one accepts Friedman's (1953) position that theories are to be evaluated only on their explanatory and predictive adequacy, R-A theory is superior to neoclassical perfect competition theory. That is, Hunt (2000) argues, consistent with the IR model, that the problem that R-A theory addresses is not the descriptive inaccuracy of the premises of perfect competition theory. Rather, the problem addressed is the inadequacy of perfect competition theory to explain and predict well.

Conclusion

By addressing six issues, this article further explicates the inductive realist (IR) model of theory generation that was first introduced in Hunt (2013). First, as to the "inductive realist" label, the model is called "inductive realist" because (1) it is consistent with the classical realism of Moore (e.g., 1903) and Russell (e.g., 1929), (2) the linguistic expressions in Boxes 1 and 4 are proposed to be about the real-world entities in Box 6, (3) features of the world external to the theories proposed in Box 4 influence the empirical successes and failures of theory proposals, and (4) the model adopts the inductive realism tenet originally proposed by McMullin (1984) and then incorporated into the inductive realist model of theory status in Hunt (2011, 2012).

Second, as to whether the real world of theory generation is as linear as the model depicts, in the interests of parsimony, much of the iterative nature of the process of theory generation is not explicitly modeled. Third, as to whether the model is positive or normative, it is designed to be strongly positive and weakly normative. It attempts to accurately portray the major stages, timing, and feedback loops in theory generation (which makes it strongly positive), while being potentially helpful to those seeking to develop new theories (which makes it weakly normative). Fourth, as to how the model relates to Zaltman et al.'s (1982) "theory-in-use" approach, this article discusses their major similarities and differences. Perhaps the most important thing to keep in mind is that, whereas the IR model is strongly positive and weakly normative, the theory-in-use approach is strongly normative and weakly positive. Accordingly, to the extent that researchers actually use the theory-in-use approach, the IR model subsumes such efforts.

Fifth, as to whether the model is a testable, causal model, the IR model is a process model, not a causal model. Furthermore, under a broadened interpretation of "testable" as being equivalent to "evidentiary support," the IR model is testable. Sixth, as to whether "problem recognition" starts with "current disciplinary knowledge," the answer is "no" in a triggering cue, psychological sense. However, theory developers must recognize that the deficiencies that they claim to exist in current disciplinary knowledge become a *problem* for the discipline only when such deficiencies are acknowledged by members of the discipline (e.g., reviewers and editors of journals).

In conclusion, the IR model links theory discovery and justification, but much more work remains to be done. For example, consider the important role of constraints (Box 7) in theory generation. In marketing theory development, what are the major constraints in problem recognition (Box 2), creative cognitive acts (Box 3), and new theory proposals (Box 4)? How should the constraints be categorized? Are the constraints reasonable or unreasonable? Are the constraints changing? *Should* the constraints be changed? As a second example, what do we know about the specific kinds of creative cognitive acts (Box 3) that take place in the process of new theory proposals (Box 4)? Do different types of theories commonly result from different types of creative cognitive acts? As a third example, what kind of changes in doctoral programs would result in preparing students better for "seeing" problems (Box 2) in marketing's current disciplinary knowledge (Box 1) and engaging in the kinds of creative cognitive acts (Box 3) that would result in *successful* new theory proposals (Box 4)? In short, much work needs to be done.

Acknowledgments The author thanks the many doctoral students and faculty who have raised intriguing questions concerning the inductive realist model of theory generation. The author also thanks the editor and anonymous reviewers for helpful comments on a draft of this article.

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