Research Paradigms in Organizational Learning and Performance: Competing Modes of Inquiry

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The debate over whether a dominant paradigm is appropriate for the rapidly evolving organizational learning (OL) research has resulted in significant discord among researchers in the field. This critical issue paper compares and contrasts the strengths and weaknesses of three widely used research paradigms in OL research: positivism, interpretivism, and critical science. It argues that in many cases, the taxonomy of positivistic research should be employed as the central methodological framework in investigating organizational learning and subsequent performance issues while valuing contributions made by the other two approaches to OL research.

The Longman dictionary (1995) defines research as "the studious study of a subject, that is intended to discover new facts or test new ideas; the activity of finding information about something that one is interested in or needs to know about" (p. 1205). As the definition implies, in the strenuous journey to knowledge, researchers and scholars employ various research paradigms to guide them through the course of knowledge seeking. From the research perspective of organizational learning (OL), the three primary research paradigms of positivism, interpretivism, and critical science, have been widely discussed and used within the field.

Problem Statement and Research Questions

Learning is defined in a broad sense as the acquisition of new skills and knowledge that results in changed behavior (Snyder & Cummings, 1998). In today's continuously changing and turbulent business environment, organizations are becoming increasingly interested in ways of gaining and sustaining competitive advantage. When confronted with performance problems that may arise in organizations, researchers and practitioners rely on learning solutions as a way of addressing these issues; professionals perceive that learning is a prerequisite to performance improvement and change (Gilley, Dean, & Bierma, 2001; Vakola, 2000). Consequently, learning has become a key contributor to organizations' adaptation and innovation in a highly competitive global market.

Several researchers have responded to expanding organizations' learning needs by proposing learning models for the design of organizations that are more sensitive to the volatile business environment (Argyris & Schon, 1996; Senge, 1990; Snyder & Cummings, 1998). As Leroy and Ramanantsoa (1997) defined it, organizational learning is the collective phenomenon of the acquisition, development, and dissemination of knowledge and skills within the organization to positively influence organizational outcomes. The Academy of Human Resources Development also emphasizes organizational learning and performance for the purpose of enhancing organizational effectiveness. In such conceptualizations, organizational learning is regarded as having significant potential to affect organizational outcomes, such as performance, efficiency, and competitive advantage (Templeton, Lewis, & Snyder, 2002). In fact, it is now a common strategy for companies to use organizational learning both to solve existing problems and to enhance the companies' status in the face of changing conditions.

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As a response to the increasing interest in OL, research has focused on describing, developing, and testing conditions that support collective learning in order for organizations to enhance their abilities to change and continuously re-design business processes for success (Garvin, 1998; Lee, Courtney, & O'Keefe, 1992; Senge, 1990). During this process, the debate over whether a single research method should be employed as a common standard in OL research has caused persistent and vexing discord among researchers within the field (Clark, 1985; Easterby-Smith, 1997; Watkins, 1991). Although such disagreement can provide the basis for advancing sound theory and practice, the lack of a dominant method frequently produces incongruities among findings that emerge from ongoing research endeavors in the field (Guba, 1985; Huber, 1991; Lahteenmaki, 2001). Some OL scholars argue in favor of using widely divergent research techniques, as there is no general research framework to examine and measure the multifaceted, transient, and contingent learning and performance factors that affect modern organizations (McGoldrick, Stewart, & Watson, 2001; Morgan, 1983). However, because the applied realm of OL research is performance and outcome-oriented, this article argues that the taxonomy of positivism should be considered the method-of-choice relative to interpretive and critical science because of its ability to uphold best the validity of findings and generalizability of results.

In support of the above contention, this article examines and compares the advantages and disadvantages of the three basic modes of inquiry in OL research. While arguing that the OL field would best be served by placing a heavier emphasis on positivistic research, however, it also maintains that positivism should not be used exclusively as the sole OL research framework. Both researchers and practitioners should be mindful of the benefits that can flow from the mix and application of the other paradigms as a means of increasing the depth of research.

The central research questions guiding this analysis are:

1) Which research methods are best suited to investigate learning and performance issues in modern organizations?
2) What are the strengths and weaknesses of each research paradigm?
3) What responsibilities should researchers assume to serve the needs of organizations and their members better?

This article examines the literature on OL as a means of providing an analysis of the three most widely utilized research paradigms in OL research: positivism, interpretivism, and critical science. In doing so, positivism, which has been a central mode in social science research, is compared to and contrasted with the other two paradigms with respect to their philosophical origins, assumptions, concepts, and utility to advance the OL field.

Conceptual Framework for Three Research Methodologies

Positivism is based on the assumption that there are universal laws that govern social events, and uncovering these laws enables researchers to describe, predict, and control social phenomena (Wardlow, 1989). Interpretive research, in contrast, seeks to understand values, beliefs, and meanings of social phenomena, thereby obtaining *verstehen* (a deep and sympathetic understanding) of human cultural activities and experiences (Smith & Heshusius, 1986). Critical science seeks to explain social inequities through which individuals can take actions to change injustices (Comstock, 1982). The three approaches take distinctively different epistemological positions regarding theoretical foundations, assumptions, and purposes while producing competing modes of inquiry.

Historical and Philosophical Origins of Positivism

The positivistic paradigm of research originated in the 19th century as an attempt to apply the methods of the natural sciences to social phenomena (Smith, 1983). In 1822, the French philosopher Auguste Comte created the term *sociologie* and further classified social interactions as physical science-like phenomena to investigate and find their universally governing rules (Babbie, 1993). Prior to this time, religious taxonomies were prevalent to investigate and explain social phenomena. Comte aimed at

replacing these religious beliefs with scientific objectivity and empirical inquiry by arguing that the human world could be detached and analyzed in an objective way. Comte's conceptualization of positivism was based on scientific objectivity and observation through the five senses rather than subjective beliefs. This revolutionary view of the social world as a science-like phenomenon that was understandable through empirical investigation, became the basis for the application of the positivistic approach (Babbie, 1993).

Before examining the major assumptions of positivism, it is necessary to explain the philosophical influences of scientific realism on positivism, as the approach was rooted in the idea of scientific realism (Smith & Heshusius, 1986). The paradigm of scientific realism asserts that the kinds of things that exist and what they are like are independent of the researcher and the way in which researchers discover them (Craig, 1998). In examining reality, scientific realism further delineates the concept of subject-object dualism; an ontological question of "what is" can be kept apart from an epistemological question about how one comes to know "what is" (Smith, 1983). Positivism, as derived from Comte's philosophical foundations, holds that social reality exists independent of people and can be objectively investigated by employing valid and reliable measurements.

Major Assumptions of Positivism

The assumptions reflected in positivistic research are based on the notion of a mind-independent reality (Popkewitz, 1980). Researchers employing positivistic research inherently recognize the following primary assumptions as intrinsic characteristics of the positivistic mode of inquiry (Wardlow, 1989):

1. The physical world and social events are analogous in that researchers can study social phenomena as they do physical phenomena.
2. Theory is universal and sets of principles and inferences can describe human behavior and phenomena across individuals and settings.
3. In examining social events, researchers adhere to subject-object dualism in that they stand apart from their research subjects and treat them as having an independent existence.
4. There is a need to formalize knowledge using theories and variables that are operationally distinct from each other and defined accordingly.
5. Hypotheses about principles of theories are tested by the quantification of observations and by the use of statistical analyses. (p. 3).

Essential Concepts Reflected in Positivism

Positivism asserts that knowledge and truth are questions of correspondence in that they relate to an external referent reality (Smith, 1993). This correspondence theory of truth stipulates that the source of truth is in reality; therefore, a statement is proved to be true if it agrees with an independently existing reality and is false if it does not. For example, if two or more statements regarding the same external referent reality compete with one another, then researchers must make a decision to accept one and reject the other, or even to reject both in favor of another alternative (Smith, 1983). It further contends that empirical methods for the process of verification should be employed because these methods are objective and do not influence what is being investigated. In the process of investigation, researchers should express themselves in value-neutral, scientific language to move beyond ordinary and subjective descriptions, thereby resulting in universal and accurate statements and laws about the world. In doing so, knowledge attained about the independent reality can be accepted by reasonable people (Smith, 1983).

In the positivistic tradition, proper applications of empirical methods are essential to producing knowledge (Babbie, 1993; Walker & Evers, 1999). Empirical methods specify how the rational structure of scientific investigation is formulated and tested. For example, researchers generally begin by noticing a new pattern or inconsistency with established theories and posing the preliminary finding as a problem to be investigated. After further exploration, investigators propose a

hypothesis in which they deduce predictions. As a rule, they test the predictions and present the hypothesis as genuine knowledge if it is confirmed as valid. If the hypothesis is rejected, researchers usually alter the previous hypothesis or develop another and repeat the procedure. This process is self-corrective, and by examining incorrect hypotheses, researchers narrow the search for a correct one (Borg & Gall, 1996). Such methodologically generated knowledge, as it is thought to constitute an accurate description of reality, becomes accepted as truth through this rigorous empirical verification process.

One of the major goals of using positivism in OL research settings is to obtain valid and reliable knowledge as a set of universal principles that can explain, predict, and control human behavior across individuals and organizations. In the positivist's perspective, validity means that findings are accurate statements about the world as it is without the researcher's involvement, and reliability holds that the proof of such truths are able to be replicated (Walker & Evers, 1999). For instance, if a specific hypothesis is tested using the same instrument or technique in multiple trials and the outcome yields a similar or the same result, then the measure is held to be *reliable*. If the measurement attained is also of the construct of interest, then the findings are held to be valid. Importantly, reliability is a prerequisite for construct validation, but in itself does not prove validity. In the positivistic tradition, what is deemed to be *valid* is considered public knowledge because others can replicate the findings by employing the same instruments and methods while reducing the potential consequences stemming from researchers' personal values and biases (Smith, 1983).

Limitations of Positivism

Blind faith in the positivistic approach can potentially jeopardize the soundness of research in the social sciences. First, influential contextual factors in organizations can be ignored by methods aiming to draw causal inferences through examining only phenomena that are readily observable. For example, personal information about research participants, which might moderate the outcomes of a given study, is at times disregarded in OL research since participants are treated strictly as research objects. Indeed, attempts to predict human behavior are often placed in contexts where people interact with one another in organizations. Therefore, if researchers can understand the contextual elements embedded in human behavior (i.e., how individuals are related to one another in a given organization rather than quantifying segmented, individual components), they can substantially increase their predictive power of human events.

Another inherent limitation is that "truth" in the positivistic tradition is often stated probabilistically. To this extent, these researchers can seldom achieve their own goals of having specific truth, but only probabilistic inferences of truth in which theory never becomes regarded as fact.

A final limitation lies in the inherent constraint of the positivistic method in measuring phenomena that are by their very nature subjective. For example, a positivistic analysis of human behaviors in organizations may assign quantitative values to represent specific actions that are to serve as a measurement of the construct of interest. However, differences in a priori rater opinion of such constructs can lead to differing results and measurement error. One researcher, for example, may count a specific behavior as "leadership-oriented," while another may count the same behavior as "aggressive." Consequently, a limitation of positivism in OL research arises when different measurement procedures stemming from different operational definitions potentially lead to different conclusions about the same construct. Yet, positivistic measurements can often provide researchers with an efficient means of labeling and classifying complex human behaviors in diverse areas of OL research. More specifically, by employing a positivistic operationalization, researchers can group and quantify behaviors and subsequently communicate with others in comparable terms.

Competing Views of Positivism: Interpretivism and Critical Science

OL researchers advocating interpretivism often question the positivist's belief of the mind-independent reality. To interpretive researchers,

organizational and social realities are constructed as a product of theorizing, and this individual theorizing itself shapes and affects reality; there is no mind-independent reality to correspond with hypotheses to serve as an external referent point on their acceptability (Walker & Evers, 1999). Knowledge is thus seen to be comprised of multiple sets of interpretations that are part of the social and cultural context in which it occurs. Interpretive researchers hold, consequently, that there should be an openness to the understanding of people whom researchers study and tentativeness in the way researchers hold or apply their conceptions of those being studied (Giorgi, 1997; Husen, 1999; van Manen, 1998).

Yet, the very contextual and subjective nature of interpretative research findings is often a significant impediment for OL researchers who seek to generalize the results to different organizational settings. What is true in one situation or context may not be true for another. These situational and contextual discrepancies create a formidable obstacle to attaining findings that are transferable to various contexts. In many cases, the unique variance of these influential factors makes results impossible to replicate. Moreover, even to the extent that some degree of replication is possible, the unique mitigating circumstances affecting such results may make moot the goal of using the applied research for the development of organizational interventions that can be applied on a broad scale.

Conducting interpretative studies can also be costly due to extended research time. For instance, to conduct an ethnographic study of supervisor-employee behavior in a particular immigrant group, a great deal of time is needed to observe, describe, and understand the complex and value-laden immigrants' business culture and their idiosyncratic interactions. A replication of the original research as well as reaching inter-subjective agreement on the findings can be an equally arduous task. In addition, as researchers' views are often reflected in the interpretive research process, their personal subjectivity may inherently bias the research conclusions (Babbie, 1993). While experienced interpretive scholars bracket their preexisting ideas of the phenomena and further assume a moral responsibility to accurately represent subjects and contexts as a means of reducing biases in their findings, it is almost impossible to completely remove this crucial source of error. Many interpretive researchers acknowledge such bias as acceptable, but purists from the positivistic tradition believe such contamination is unacceptable.

Critical scientists go one step further in their philosophical opposition to the value-neutrality of positivism by arguing that researchers should take a stance and share responsibility for social changes (Comstock, 1982). Critical scientists maintain that positivistic methods cannot capture the critical role in knowledge of values that are needed to improve human conditions (Comstock, 1982). They also point out that the positivistic tradition frequently neglects the realities of power, ideological beliefs, and social inequities manifest in society (Rettig, Tam, & Yellowthunder, 1995). For example, critical scientists can question the validity of a popular organizational learning concept, employee empowerment. This concept can be defined as whether companies genuinely care about empowering employees to promote their potential with humanistic motives or simply give some fraction of their power to tantalize employees while retaining essential control. By criticizing the notion of employee empowerment, critical scientists may argue that "empowerment," "employee voice," and "open communication" can be simply the reintroduction of a power struggle between management and employees in which management grants a small fraction of power to the employees. The employees, viewed as the oppressed, are not truly emancipating themselves, but rather are only disillusioned by management's empowering tactics whose aim is to solidify control over the employees. In addition, the organizational setting may not be a safe place for the employees to speak out about their experiences or opinions due to the fear of coercion or a sense of vulnerability in revealing too much in public.

The major disadvantage of employing critical science in OL research is that the researcher's involvement, interaction, and activities during the research process can be substantially political and thus may fail to facilitate scholarly writing (Fay, 1987). The critical science approach also advocates a process of research that yields social change rather than pure knowledge generation. Thus, while employing critical science can produce

emancipatory knowledge, it might not be readily transformed into academic publication due to the lack of understanding and acceptance of the approach among scholars and the time-consuming nature of the research process (Rettig, Tam, & Yellowthunder, 1995).

Reasons for the Prevalence of Positivism in the Research Community

Certain goals in the field of OL research are highly compatible with positivistic applications. Employee motivation to learn after organizational interventions, the effects of training programs on levels of employee performance, and minimal competency testing for assessing employee learning needs are a few OL examples that rely on the measurable and generalizable instruments of the positivistic approach. As a result, these organizational learning and performance goals align well with positivism due to their implicit orientation towards prediction and control. Since positivistic knowledge seeks to determine how change in one variable will produce change in another, also known as causal relationships, it facilitates the attempt to get more output for one's input that is the practical concern of practitioners in organizations (Swanson, 1995).

The correlational design of positivism can be useful to study OL issues, as its principal advantage is to analyze the relationships among a large number of variables in a single study (Fanslow, 1989). In modern organizations, there are often situations in which several variables are related to a particular pattern of behavior. When a researcher wants to investigate the factors correlated with the transfer of training in the workplace, there are likely to be multiple variables affecting such transfer, such as previous education and work experience, supervisor-subordinate interactions, and perceived support regarding employee learning and transfer. By employing the correlational design, researchers can determine whether there are relationships among these variables and the level of employee learning and subsequent transfer, control for potential confounding factors, and further measure the directions and degrees of these relationships. The correlational design is thus an invaluable research tool to investigate OL issues, as it allows researchers to analyze the relationships among multiple variables, either individually or in combination, by identifying the direction and degree of associations among them (Borg & Gall, 1996; Pirsig, 1997).

There are several issues to be addressed prior to conducting research in OL. One of the crucial questions that OL researchers should ask prior to initiating their investigation is whether the findings are genuinely relevant and likely to be beneficial to participating organization members as well as the study of OL. In other words, researchers and practitioners should be concerned with the potential utility of research findings with respect to tangible, positive, and long-term returns for organizations in addition to the contribution of knowledge for future research (Alan, 1997; Scheirer & Rezmovic, 1983; Swanson, 1992). The research must also be designed to obtain findings that can be generalized and applied beyond the situation in which the study is initially carried out. Employing the positivistic approach in OL research can then be recommended for its strong tendency to produce applicable knowledge that is externally valid.

Another important aspect of positivism in OL research is that the approach facilitates the refinement, and even negation, of existing theories by challenging and questioning them for more refined applications rather than dwelling on the antecedents of previous research (Moser, Mulder, & Trout, 1998). Moser and his colleagues point out that researchers can sometimes become the victims of dogmatism by failing to recognize their fallibility. In positivism, research hypotheses are generally derived from established theories, and subsequent findings extend the general body of knowledge. In the process of inquiry, researchers might capture the inconsistency between the existing theories and their own hypotheses and thus challenge the previously accepted ideas to resolve disagreements. Factors that have not been adequately addressed in previous research can be further pursued. The approach then promotes a healthy and rigorous measure of cultivating knowledge by raising questions and making investigators aware of the validity of their hypotheses (Pirsig, 1997).

Empirically grounded methods in positivism also serve as a "reality check" to reduce researchers' biases and values which can potentially

contaminate the research process and subsequent discoveries (Smith, 1993). As interpretive researchers point out, perception, experience, and socio-cultural background affect how each individual sees the world in everyday situations. At the level of everyday discourse and experience, it is difficult for researchers, as individuals embracing all socio-cultural aspects in formulating their views, to discard their personal values and beliefs when conducting research. Instead of denying the presence of these biases, positivistic researchers call upon proven empirical methods in an attempt to minimize the distorting effects of their subjectivity in investigation. Empirical procedures are available to the inquirer prior to engaging in the process of inquiry and thus tend to be neutral and independent of the process (Smith & Heshusius, 1986). In addition, the knowledge produced through these procedures can and should be replicated by anyone who adheres to the same method. The positivistic mode of inquiry thus provides a self-corrective mechanism that checks the credibility of data and minimizes the distorting effect of personal subjectivity on the generation of knowledge.

Critical scientists criticize positivistic researchers on the grounds that they lack or even dismiss the realities of value-laden policy making processes embedded in society. Yet, positivistic research has increasingly addressed the policy implications of research findings through evaluation research (Babbie, 1993). The purpose of evaluation research is to measure the impact of policy interventions such as new training methods, innovation in workplace technology, and a wide variety of OL programs to ensure that there is a nexus between research findings and practical applications (Alan, 1997). In contrast to critical science methods in which research serves to produce emancipatory knowledge, positivistic methods in evaluation research are empirically grounded, and research objectives are aimed at assessing the effectiveness and efficiency of interventions. The current expansion of evaluation research among positivistic researchers reflects their increasing awareness to ensure the feasibility and utility of interventions formulated from research in the applied domains of OL (Borg & Gall, 1996).

Conclusion

Positivism has been a dominant mode of inquiry in social science for over a century (Wardlow, 1989). Since Comte's use of positivism in the 19th century, there has been major progress in social and educational research at universities and research institutions with the refinement of methodology and statistical analyses. As a result, positivism has become the dominant research paradigm, and cross-disciplinary researchers used its prevailing methods and techniques until the mid-1960s (Husen, 1999). During the social movements in the 1960s, critics of positivism began to question its merits and legitimacy (Banks, 1998; Code, 1991). Critical scientists argued that institutionalized theories and paradigms considered neutral often favored the mainstream population and consequently neglected marginalized communities. Likewise, interpretive researchers criticized positivism for failing to respect and understand the unique socio-cultural contexts inherent in a multiethnic society (Banks, 1998). As a result of this conflict among researchers, the present situation in the research community is a confrontation among the three approaches, often manifest as a heated debate between "hard" and "soft" or "quantitative" and "qualitative" science (Bredo & Feinberg, 1982; Code, 1991).

This paper has examined and assessed the three widely used research paradigms in OL research, positivism, interpretivism and critical science. In doing so, it has found that each approach has its own unique advantages that promulgate valuable knowledge and augment the literature in OL research. It also has been demonstrated, however, that the relationships among the three approaches are generally not synergistic in nature, as the underlying theoretical and epistemological rationale of each is frequently at odds with those of the others. Indeed, as each of these paradigms has its own set of advocates, the consequences have been a fractionalization among researchers in the field, disagreement over the interpretations of findings, and a lack of unity with respect to the direction that future research should pursue. The solution to the dogmatism that has created this unfortunate state of affairs is not easily redressed through compromise, as attempts to

formulate methods based on a synthesis of the approaches are vulnerable to discounting the inherent advantages of each. It should also be noted, however, that the three paradigms are not necessarily incompatible within the research domain of OL, and both the circumstances and questions of study to be addressed should be viewed as factors in deciding which approach should be applied.

After examining the merits and shortcomings of each, this article has nevertheless led to the conclusion that OL research would greatly benefit by adopting an emphasis of positivism as the principal research approach. Because of the fundamental premises that underlie positivism, specifically the requirements that the development and testing of hypotheses be conducted in a manner that is both quantifiable and able to be replicated, the subsequent findings would be less prone to error introduced by investigator subjectivity and hence more widely accepted. Empirical procedures used in the positivistic tradition, moreover, are best able to assess and develop practical organizational interventions relative to the outcomes produced by the interpretive and critical science paradigms. This is not to say that the shortcomings of positivism as articulated by proponents of the interpretive and critical science taxonomies should be ignored; in fact, for the positivistic approach to be truly valuable, its potential disadvantages must be recognized and addressed.

One caveat to be noted is that while this paper strongly advocates the adoption of positivism as the central research approach to investigate OL issues in modern organizations, it does not contend that the paradigms of interpretivism and critical science should be abandoned. Both provide the field with substantial value, the former through its attention to understanding the individual experience and the latter by encouraging emancipation and self-development. The incorporation of both of these approaches within the OL domain would allow research endeavors to be more holistic in their understanding and conceptualization of human behavior and development. On the other hand, to equate interpretivism and critical science as research methodologies on parity with positivism would subject OL research to the continued discord that defines its current state. To this end, a movement toward an emphasis on positivistic research would significantly improve the study of OL.

Implications for OL Research: A Methodological Framework for Advancing Theory and Practice

The ability of researchers to advance knowledge and contribute to the general business community is essential. More than a few scholars have recognized that there is an integrated relationship between scientific research and organizational practice (Alan, 1997; Kling, 1995; Scheirer & Rezmovic, 1983; Schneider & Konz, 1989; Swanson, 1992). Because research is the fundamental cornerstone on which sound theory is transformed into effective organizational practice, it is important that the methodological foundation on which the research is based be both sound and rigorous. Increasing the emphasis on using positivistic research techniques is both a viable and necessary means for investigating OL issues to achieve the dual goals of developing effective practical business practices and establishing itself as a strategically essential academic business domain. The widely accepted techniques of positivism have proven to be significant conduits to meeting these ends in other business disciplines, and the extension of the same criteria and standards to OL research can thus substantially forward these aims. By placing increased value on studies that use positivistic methods to carry out future OL research, the encouragement of such studies through the publication of those research endeavors in the academic literature, and the dissemination of the findings in the form of strategic business interventions, the field would benefit from a unification of such standards.

At the same time, OL research should continue to value those works that use interpretive and critical science approaches. If anything, the use of these approaches differentiates OL research from traditional business research, and their contributions enrich the understanding of cultural and individual perspectives and address important areas that are often overlooked in these domains when positivistic research is exclusively used as an instrument of research. OL researchers should continue to forward and encourage the use of such

diverse paradigms. The essential change that is advocated in this paper is for a shift in the prioritization of these paradigms, with the positivistic framework emerging as the principal research paradigm of choice within the field. Realistically, such change will not be quick, as many in the field strongly hold viewpoints that disagree with this perspective. The important point is that vigorous debate should be encouraged with some consensus realized from ensuing dialogue. Such agreement would act to strengthen the field and enhance the future impact of OL research output with respect to both businesses and the community, which are the true beneficiaries of such work.

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