

Institutionalization and Structuration: Studying the Links between Action and Institution

Stephen R. Barley, Pamela S. Tolbert

Abstract

Stephen R. Barley
Department of Industrial Engineering and Engineering Management, Stanford University, U.S.A.

Pamela S. Tolbert
School of Industrial and Labour Relations, Cornell University, Ithaca, U.S.A.

Institutional theory and structuration theory both contend that institutions and actions are inextricably linked and that institutionalization is best understood as a dynamic, ongoing process. Institutionalists, however, have pursued an empirical agenda that has largely ignored how institutions are created, altered, and reproduced, in part, because their models of institutionalization as a process are underdeveloped. Structuration theory, on the other hand, largely remains a process theory of such abstraction that it has generated few empirical studies. This paper discusses the similarities between the two theories, develops an argument for why a fusion of the two would enable institutional theory to significantly advance, develops a model of institutionalization as a structuration process, and proposes methodological guidelines for investigating the process empirically.

Descriptors: structuration, institutionalization, organizational change, social action, methodology, longitudinal analysis

Introduction

The concept of institution has long been a mainstay of sociological theory (Hughes 1936, 1939; Parsons 1951; Selznick 1949, 1957), but has only recently acquired prominence in organization studies (Meyer and Rowan 1977; Zucker 1977, 1983; DiMaggio and Powell 1983; Powell and DiMaggio 1991). The rising interest in institutions among students of organizations reflects a growing disenchantment with theories that portray efficiency as the driving force behind decision making or that treat variations in formal structure as rational adaptations to technical and environmental conditions (e.g. Woodward 1958; Lawrence and Lorsch 1967; Blau 1970). Unlike these more traditional theories, institutional theory highlights cultural influences on decision making and formal structures. It holds that organizations, and the individuals who populate them, are suspended in a web of values, norms, rules, beliefs, and taken-for-granted assumptions, that are at least partially of their own making. These cultural elements define the way the world is and should be. They provide blueprints for organizing by specifying the forms and procedures an organization of a particular type

should adopt if it is to be seen as a member-in-good-standing of its class (Meyer and Rowan 1977). Institutions, therefore, represent constraints on the options that individuals and collectives are likely to exercise, albeit constraints that are open to modification over time.

These arguments bear a resemblance to certain tenets of structuration theory as articulated by Anthony Giddens (1976, 1979) and those who have brought Giddens' insights to organization studies (Ranson et al. 1980; Pettigrew 1985, 1987; Willmott 1987). Like structuration theorists, institutional theorists acknowledge that cultural constraints do not completely determine human action (DiMaggio 1988, 1991; Oliver 1991; Strang 1994). Rather, institutions set bounds on rationality by restricting the opportunities and alternatives we perceive and, thereby, increase the probability of certain types of behaviour. However, just as perfect rationality is rare, so too is completely bounded rationality. Through choice and action, individuals and organizations can deliberately modify, and even eliminate, institutions. The acquisition of suffrage by women in the United States, the dismantling of apartheid in South Africa, and the collapse of the Soviet Union represent a few ready examples.

Nevertheless, even though organizational theorists may now more willingly acknowledge the interdependence of actions and institutions, they have only begun to develop the theoretical and empirical implications of such a stance. We contend that for institutional theory to fulfill its promise for organizational studies, researchers must develop dynamic models of institutions (see Whittington 1992) and devise methodologies for investigating how actions and institutions are recursively related. This paper seeks headway on both fronts. We begin by reviewing recent analyses of organizations based on institutional theory, focusing on their common neglect of the links between actions and institutions.¹ Next, we draw on Giddens' (1976, 1979, 1984) work on structuration to articulate a model of how institutions are formed, reproduced, and modified through an interplay of action and structure. We then propose guidelines and procedures, based on this model, for investigating how institutions affect, and are affected by, action.

Institutional Theory and the Study of Organizations

Zucker (1977: 727–728) and Meyer and Rowan (1977: 346) initially drew on the work of Berger and Luckmann (1967) to argue that institutions are socially constructed templates for action, generated and maintained through ongoing interactions. From this perspective, actors create institutions through a history of negotiations that lead to 'shared typifications' or generalized expectations and interpretations of behaviour. The patterned relations and actions that emerge from this process gradually acquire the moral and ontological status of taken-for-granted facts which, in turn, shape future interactions and negotiations. Although Berger and Luckmann largely ignored the role that conflicting material

interests may play in an institution's development, such considerations are not entirely incompatible with their formulation (Ranson et al. 1980). In fact, Berger and Luckmann allude to material and political interests in their discussion of institutional change and elaboration (1967: 81–84).

The role of actors' self-awareness and self-interest is more explicit in DiMaggio and Powell's (1983) definition of organizational fields. Although DiMaggio and Powell did not draw explicitly on Berger and Luckmann to frame their arguments, their views of emerging institutions are generally consistent:

'Fields only exist to the extent that they are institutionally defined. The process of institutional definition, or 'structuration', consists of four parts: an increase in the extent of interaction among organizations in the field; the emergence of sharply defined interorganizational structures of domination and patterns of coalition; an increase in the information load with which organizations must contend, and the development of a mutual awareness among participants in a set of organizations that are involved in a common enterprise.' (DiMaggio and Powell 1983: 148)

Note that passage links the actions of actors (organizations) to a larger social structure (the field), posits that actors are knowledgeable ('mutual awareness of . . . a common enterprise'), and suggests that institutions constrain the very actions that produce them ('emergence of . . . structures of domination'). Thus, in their early work, institutionalists explicitly postulated that institutions exhibit an inherent duality: they both arise from and constrain social action. More often than not, however, institutionalists have concentrated on an institution's capacity to constrain (Zucker 1987: 444–447; Whittington 1992).

With the passage of time, Meyer and his colleagues have come to treat institutions primarily as exogenous to organizational action (Meyer and Scott 1983; Scott and Meyer 1987; Sutton et al. 1994; Scott and Meyer 1994). Their more recent work associates institutional pressures with the demands of centralized authorities or regulatory agencies and, only secondarily, with widespread beliefs, practices, and norms. Consequently, their research programme has focused on the causes and consequences of conformity and on the manner in which the environment 'interpenetrates the organization' (Meyer and Rowan 1977). The problem with this approach is that it depicts an institution as somehow distinct from those who comply and, more importantly, from the act of compliance itself. The result reifies the notion of institution. Moreover, by emphasizing the rewards and sanctions associated with compliance, the approach blurs the distinction between resource dependence and institutional theory, thereby obscuring the latter's distinctive contribution to organization studies (Tolbert and Zucker 1996).

In contrast, Zucker and her colleagues have continued to emphasize the role of normative and taken-for-granted assumptions in their analyses of organizations, but have paid relatively little attention to the process

by which such assumptions arise and are maintained (Zucker 1977, 1986, 1991; Tolbert and Zucker 1983, 1996; Tolbert 1985; Zucker et al. 1995). This line of work has sought to elaborate, theoretically and empirically, the claim that organizational structures reflect institutional understandings, rather than rational calculations of efficiency. To muster empirical support, researchers in this camp usually pit predictions derived from efficiency or power-oriented theories against predictions derived from institutional theory, and then take findings that are consistent with the latter, but not the former, as support for an institutional perspective. With few exceptions (e.g. Zucker 1977), however, these studies rarely measure institutionalization directly and only briefly address how particular organizational structures emerge or why their scope (diffusion) is inevitably limited. To answer such questions, one needs to consider how actions affect institutions.

Thus, even though both streams of institutional research initially claimed that organizational structures are socially constructed, neither has directly investigated the processes by which structures emerge from, or influence, action. For insight into these processes, we turn to Giddens' (1976, 1979, 1984) notion of structuration.

Towards a General Model of Action and Institution

Defining Institution

A viable theory of the relation between action and institution requires, at minimum, a heuristic definition of an institution that will allow researchers to examine the change and reproduction of institutions as general, ongoing, and historically embedded processes. With this aim in mind, we define institutions as *shared rules and typifications that identify categories of social actors and their appropriate activities or relationships* (see also Burns and Flam 1987). This definition bears a strong resemblance to Giddens' (1984:2 377) notion of 'structure' and Sewell's (1992) idea of a 'schema'. Neither Giddens nor Sewell, however, emphasize the degree to which institutions vary in their normative power and their effect on behaviour. As Tolbert and Zucker (1996) point out, practices and behavioural patterns are not equally institutionalized. This variation depends, in part, on how long an institution has been in place and on how widely and deeply it is accepted by members of a collective. Institutions that have a relatively short history or that have not yet gained widespread acceptance are more vulnerable to challenge and less apt to influence action.

One can think of institutions as abstract algebras of relations among members of social sets. From this perspective, institutions are to social action as grammars are to speech. Speech allows for an infinite variety of expressions, yet to be comprehensible, every expression must conform to an underlying set of tacitly understood rules that specify rela-

tions between classes of lexemes. Similarly, social actions may vary in their particulars, but to be interpretable, their contours must conform to taken-for-granted assumptions about the activities and interactions appropriate for different classes of actors. The specifics of any grammar or institution are arbitrary in the sense that both are essentially social stipulations. Adherence to such stipulations, however, is far from arbitrary, if by arbitrary one means entirely open to individual choice.

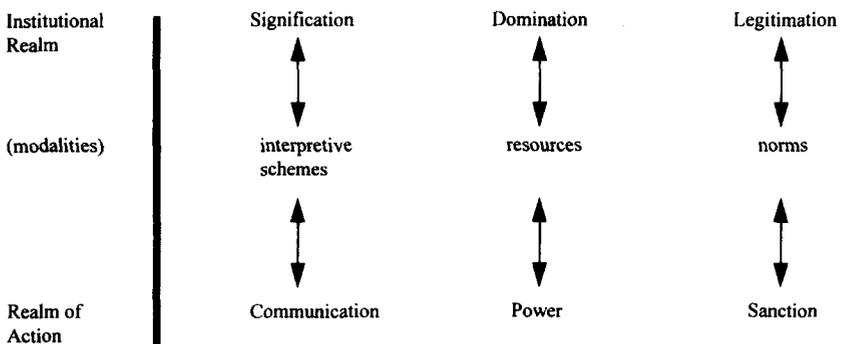
Note that our definition of institution applies to various levels of analysis because it makes no assumption about the identity of relevant social actors. They may be individuals, groups, organizations, or even larger collectives. Researchers should, therefore, be able to use this definition, regardless of whether they are investigating an institution associated with a group, an organization, an industry, or even society at large. Yet the definition is sufficiently precise to enable us to delineate more explicitly the nature of the link between institutions and everyday activities.

Institutions In Action

Giddens' (1976, 1979, 1984) work on structuration is an attempt to articulate a process-oriented theory that treats structure (institutions) as both a product of and a constraint on human action. Drawing simultaneously on the tenets of functionalism and phenomenology, Giddens tries to bridge the gap between deterministic, objective, and static notions of structure, on the one hand, and voluntaristic, subjective, and dynamic views, on the other, by positing two realms of social order (analogous to grammar and speech) and by focusing attention on points of intersection between the two realms. Figure 1 displays Giddens' conception of how the two realms of social organization, action and institution, are related.

The institutional realm represents an existing framework of rules and typifications derived from a cumulative history of action and interaction. According to Giddens, institutional orders consist of general

Figure 1
Giddens' Model
of Structuration



principles that undergird systems of signification, domination, and legitimation. In contrast, the realm of action refers to actual arrangements of people, objects, and events in the minute-by-minute flow of social life's unfolding (Ranson et al. 1980). To the degree that institutions are encoded in actors' stocks of practical knowledge (in the form of interpretive schemes, resources, and norms adapted to a particular setting which Giddens calls 'modalities'), they influence how people communicate, enact power, and determine what behaviours to sanction and reward.

With regard to day-to-day interactions, it is useful to think of institutions as being enacted through 'scripts' (Barley 1986). Although some analysts have treated scripts primarily as cognitive phenomena (Schank and Ableson 1977), we believe it is empirically more fruitful to view scripts as behavioural regularities instead of mental models or plans. From this perspective, scripts are *observable, recurrent activities and patterns of interaction characteristic of a particular setting*. Scripts encode the social logic of what Goffman (1983) called an 'interaction order'. Our contention is that the institutions relevant to a particular setting will manifest themselves in behaviours characteristic of that setting and, hence, will appear as local variants of more general principles.

The notion of a script usefully substitutes for Giddens' more abstract notion of modalities because scripts can be empirically identified, regardless of the type of actor or level of analysis in which a researcher is interested. Barley's (1986) study of interaction patterns in two radiology departments, during the year in which they acquired CT scanners, offers numerous examples of scripts whose relevant actors are individuals. 'Direction seeking', for instance, was a script that embodied the institution of medical dominance. Although the content of specific instances of direction seeking varied widely, each was characterized by the same interactional plot: (1) a technologist inquired about an appropriate course of action; (2) a radiologist provided the technologist with an answer; and (3) the technologist acted accordingly. Because the technologists enacted the script long after they had learned to run the scanner and, hence, generally knew the answers to the questions they asked, the script served primarily to validate the radiologists' dominance as professional experts.

Scripts are also useful analytic tools for studying organization-level institutions when an organization's sub-units are the relevant actors. For example, contemporary 'market-based control' systems (see Whalley 1986; Hinings et al. 1991; du Gay and Salaman 1992; Whittington et al. 1994) are instantiated in such scripts as the formulation of explicit business plans by semi-autonomous business units, the incorporation of entrepreneurial criteria into performance reviews, and the elaboration of financial data systems (revenue and expenditure codes) for individual departments.

Finally, scripts whose central actors are organizations encode institu-

tions at the interorganizational level of analysis. The institution of accreditation among colleges and universities, for example, pivots around well-established patterns of interaction between an accrediting agency and a school. Accreditation proceeds through such ritualized (scripted) procedures as establishing an outside review committee, conducting interviews with faculty and students, collecting data through internal audits of libraries and other educational resources, and so forth. The enactment of such rituals is the essence of accreditation.

Because Giddens argues that institutions exist only insofar as they are instantiated in everyday activity, critics have charged that he 'conflates' structure with action (Archer 1982, 1989; Layder 1987; Callinicos 1985). Conflation concerns the problem of reducing structure to action (or vice versa) and the difficulty of documenting the existence of an institution *apart* from activity. Unless institutions and actions are analytically as well as phenomenologically distinct, it is difficult to understand how one can be said to affect the other. Although the critics of structuration theory have aimed their critique at problems they believe to be inherent to the theory's logic and, for this reason, have sometimes argued for re-establishing the separation between structure and action that Giddens sought to transcend (Archer 1989: 103–104), we submit that the worth of the critique actually lies in the epistemological rather than the ontological issues that it raises.

Institutions are historical accretions of past practices and understandings that set conditions on action. Unless an institution exists prior to action, it is difficult to understand how it can affect behaviour and how one can examine its implications for action or speak of action's subsequent effects on the institution. Thus, to reduce the empirical problem of conflating action and institution, one needs a diachronic model of the structuration process as well as longitudinal data. Moreover, unless researchers use separate indicators of institutions (which span settings and time) and actions (which are localized to a specific setting), they can neither argue convincingly that the two map the same principles nor show how actions implicate structures broader than those of setting itself. Finally, researchers require an empirically viable means of linking the two realms that does not rely on 'artistic hermeneutics' (Archer 1989). The value of defining scripts in behavioural terms and treating them as pivots between an institution and action is that it allows one to explicate the basis for one's inferences about systems of action, while simultaneously providing a point of reference for gauging the acceptability of deductions from transsituational indicators of an institution and its implications for the logic of an interaction order.

Institutions and Actions: A Recursive Model

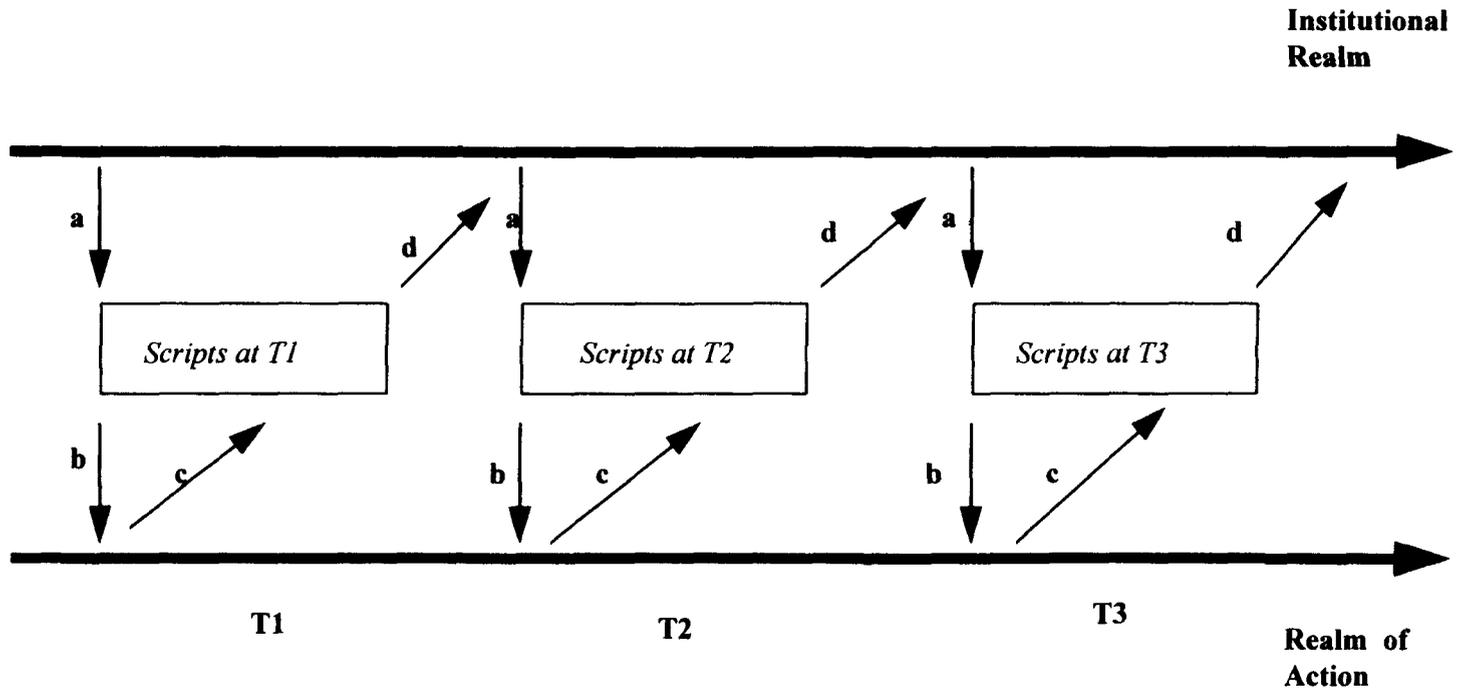
Although researchers have analyzed single instances of interaction for how they confirm or disconfirm an institutional order (see Manning

1982; Riley 1983; Willmott 1987), to fully understand the processes by which institutions and actions are reciprocally related requires diachronic analysis (Archer 1982). While Giddens (1984) explicitly contends that structuration occurs through time, his models are only implicitly temporal, since he usually treats duration as a background assumption rather than a focus of attention. The task then, as we see it, is to translate Giddens' essentially static portrayal of structuration into a more dynamic model that links action to the maintenance and change of an institution and that provides a framework for empirical research.

To investigate how patterns of interaction lead to the emergence of a new institution is, to say the least, a formidable task. An enormous amount of luck or prescience are required to recognize an emerging institution and then gather data on relevant, ongoing actions and interactions. Moreover, historical or archival material will rarely contain the detailed data necessary for documenting the link between everyday acts and the creation of an institution. Thus, it is likely that most investigations seeking to link actions and institutions will focus on the processes by which existing institutions are maintained and modified. To carry out research on these processes requires a conceptual framework that specifies the relations between interactional episodes and institutional principles. One such model, which synthesizes and elaborates notions drawn from Giddens and Berger and Luckmann, is depicted in Figure 2.

The model reflects the contention that institutionalization (or structuration — henceforth, we use the terms synonymously) is a continuous process whose operation can be observed only through time. The bold horizontal arrows that define the figure's upper and lower boundaries signify the temporal extensions of Giddens' two realms of social structure: institution and action. The vertical and diagonal arrows linking the two realms denote the duality of social systems. Vertical arrows represent institutional constraints on action, while diagonal arrows represent maintenance or modification of the institution through action. Thus, social behaviours constitute institutions diachronically, while institutions constrain action synchronically.

The first moment (arrow *a*) entails the *encoding* of institutional principles in the scripts used in specific settings. As Berger and Luckmann suggest, encoding frequently takes place during socialization and involves an individual internalizing rules and interpretations of behaviour appropriate for particular settings.² However, institutional principles can also be encoded in scripts in other ways as well. For instance, Noble (1984), Shaiken (1984) and other students of technology (Scarborough 1993) have shown how engineers can wittingly or unwittingly reproduce systems of domination in technical designs. The constraints of the technology then force operators to engage in patterns of activity that reinforce existing status systems. Similarly, formal organizational rules and procedures often define scripts that embody institu-



Key: a = encode, b = enact, c = replicate or revise, d = externalize and objectify

Figure 2. A Sequential Model of Institutionalization

tions that cover such activities as hiring personnel, evaluating performance, or offering goods or services to customers (Ranson et al. 1980; Covalleski and Dirsmith 1988).

The second moment (arrow *b*) of institutionalization occurs when actors *enact* scripts that encode institutional principles. Enacting a script may or may not entail conscious choice or an awareness of alternatives. If actors recognize that they are following a script, they will often offer a standard rationale for doing so (e.g. 'accounting needs this information'; 'creativity requires a high degree of autonomy'). In many cases, however, enactment does not involve awareness or intentionality: actors simply behave according to their perception of the way things are. It is presumably for this reason that Jepperson (1991: 145) argues that institutions are not reproduced by action, since 'action' usually connotes conscious choice. The distinction is important, regardless of whether one agrees that action deserves the connotation of intentionality. Understanding the degree to which people consciously choose to enact and ignore scripts that encode institutions is a critical issue for research on how action and institutions are linked, since modification of an institution is more likely to require conscious choice than does its reproduction.

This issue brings us to the third moment of institutionalization (arrow *c*), the degree to which behaviours *revise* or *replicate* the scripts that informed the action. Under most circumstances, an intention to alter scripts is more likely to lead to institutional change than are unconscious, unintended deviations from a script (see Boisot and Child 1988). Changes in technology, cross-cultural contacts, economic downturns, and similar events increase the odds that actors will realize that they can (or must) modify an institution (Burns 1961; Ranson et al. 1980). People can certainly conceive of alternatives without 'exogenous' changes in the situation. They may even act according to alternative visions of what social life should be like. However, their ability to foment change is likely to be constrained by the intransigence of others who, in lieu of a disturbance in the status quo, are likely to resist reopening previously negotiated arrangements (Pettigrew 1987). Thus, we believe that contextual change is usually necessary before actors can assemble the resources and rationales that are necessary for collectively questioning scripted patterns of behaviour. In the absence of contextual change, actors are more likely to replicate scripted behaviour, and it is this propensity that makes institutions so persistent (Hughes 1936: 180). While idiosyncratic deviations from scripts occur, perhaps even with some frequency, such random deviations are apt to have only passing impact on social arrangements.

Finally, the fourth moment (arrow *d*) of institutionalization entails the *objectification* and *externalization* of the patterned behaviours and interactions produced during the period in question. This involves the disassociation of patterns with particular actors and particular historical circumstances: the patterns acquire a normative, 'factual' quality and

their relationship to the existing interests of different actors becomes obscured.

Since it is impossible to observe instantaneous rates of social change, the partitioning shown in the model (T_1 , T_2 , T_3) implies that by comparing the scripts uncovered at T to those at $T+1$, one can assess whether change in an interaction order has or has not occurred. Given such a systematic comparison, the task is then to identify the forces in the interactional setting and beyond that produced the observed outcomes and to link the findings to other indicators of institutional change beyond those found in the research site itself. This brings us to the methodological issues implied by such a model.

Towards a Methodology for Studying Structuration

Our model of institutionalization as structuration suggests a general research strategy. Regardless of the level of analysis, studies that aim to investigate the dynamics of institutionalization will need to concentrate on four tasks that correspond to analytically distinct steps in the research process. Specifically, the tasks include: (1) defining an institution at risk of change over the term of the study and selecting sites in light of this definition; (2) charting flows of action at the sites and extracting scripts characteristic of particular periods of time; (3) examining scripts for evidence of change in behavioural and interaction patterns; and (4) linking findings from observational data to other sources of data on changes in the institution of interest. Although the particulars of these tasks will depend, in part, on whether the units of analysis are individuals or collectives, we shall sketch a series of general procedures and issues, focusing primarily on observations where individual actors are the units of analysis. To illustrate our points, we shall also draw extensively on Barley's (1984, 1986, 1988, 1990) study of the effects of new technologies on the institution of professional dominance in radiology departments.

Defining Institutions and Selecting Sites

Assuming that most scholars will take an existing institution as the starting point for studying links between actions and institutions, their research is likely to focus initially on the second moment of institutionalization, the enactment of scripts, since scripts already associated with the institution will need to be defined before change can be assessed. It is also probable that researchers will want to target events that maximize the probability of institutional change and, hence, the opportunity for gaining insight into conditions that shape action and the subsequent revision or reproduction of an institution. As we have indicated, forces initially exogenous to the system under study that create disturbances — e.g. changes in technology, new regulations or

laws, major economic shifts, etc. — are most likely to occasion institutional change. Structuring a study around such events also has the desirable property of allowing the researcher to use a 'before and after' design. This approach, however, carries important implications for where and when one collects data.

For instance, it implies that researchers will need to identify, in advance, events with system-disturbing potential and begin collecting baseline data on the system before an event occurs. Baseline data are crucial for assessing whether an event brings about changes in scripted action. The ability to foresee occasions for potentially significant institutional change is less difficult than it might seem. Organizations usually anticipate and even announce mergers and acquisitions, the adoption of new technologies, and changes in personnel before they occur. Similarly, governments typically publicize new laws before they are enacted and routinely stipulate when they will be enforced.

To evaluate the impact of such events on institutional outcomes, researchers will need to choose sites for observation that vary along dimensions that might be expected to mediate the impact of such events. Because one can normally collect detailed observational data over an extended period of time from only a small number of settings, when selecting sites, it is particularly important that researchers should consider factors that are likely to affect the degree to which patterns of behaviour are institutionalized.

For example, researchers interested in examining the transition to market-based control systems in professional firms might want to select sites where the professional staff's length of tenure or primary sources of revenue vary (e.g., Hinings et al. 1991; Whittington et al. 1994), since these characteristics should affect how market control will affect interaction orders. Barley (1990) chose sites that permitted him to compare ongoing interactions surrounding the use of new and old technologies because he was interested in how computerized medical imaging devices, in general, and CT scanners, in particular, affected the institution of professional dominance in radiology departments. He also required sites that would acquire a scanner sometime during the course of the research since this was the only imaging technology that was diffusing into community hospitals at the time. Finally, he chose one hospital which had close ties to a medical school and one that did not, to determine whether a teaching mandate would influence role relations and the structuring process. Studies examining the impact of declines in college enrollment on accreditation systems might similarly target schools and/or academic departments of varying prestige levels or those emphasizing different degree programmes. In short, to study structuration, scholars need to select sites based on careful consideration of factors apt to affect an institution's boundaries or that may impede or enhance institutional change (see Scheid-Cook 1992).

Charting Flows of Action and Scripts

Given the goals of formulating scripts and analyzing whether and how the scripts change, researchers need to compile accurate observational records on who interacts with whom in what ways at what times, as well as data on actors' interpretations of their behaviour at the time it occurs. Information on actors' interpretations is crucial for assessing whether they consciously consider alternative courses of action and the costs and benefits associated with such choices. Such information can help researchers avoid erroneously interpreting behaviour in structurally-deterministic ways and better assess the role of agency. Retrospective accounts and archival data may also prove useful for this but, all else being equal, contemporaneous accounts are probably less subject to rationalized reconstruction.

When the key actors in an analysis are collectives rather than individuals, charting flows of action and interaction is apt to be more difficult for a number of reasons. First, the time frame of the structuring process is likely to be longer when collectives are the relevant actors. Moreover, defining the actions of collectives can be problematic, since many individuals can act on behalf of a collective. Finally, even if one can determine how to observe the actions of a collective, charting the acts of multiple collectives is logistically more difficult than documenting the behaviour of multiple individuals, because comparable collectives are less likely to be physically proximal. Researchers who wish to study changes in institutions that govern the actions of collectives may therefore need to resort to historical and archival data.

Although many organizations fail to record or retain much data on their decision processes and activities, the dearth of information may be less than is typically supposed. Studies of interorganizational networks suggest that researchers can reconstruct relationships among organizations over time by drawing on a variety of archival sources (Burt 1983; Mintz and Schwartz 1985). Moreover, as the work of industrial historians repeatedly demonstrates, organizations often leave behind numerous traces of their actions and deliberations. In some domains, such as research and development in the electrical equipment industry, archives of considerable size exist (Birr 1957; Kline 1987). Not only do individual entrepreneurs, managers and scientists keep personal diaries, but a good number of corporations actually maintain libraries where documents relevant to the firm's history are enshrined.

To date, institutional researchers have made little use of such data, perhaps in part, because they are unaware of its existence and because most sociologists are not schooled in the ways of historians. Nevertheless, we believe that the basic tasks of identifying scripts and assessing their continuity can be carried out with historical data through a logic similar to that described above, assuming that sufficient data exist. Andrew Pettigrew's (1985) incredibly detailed and nuanced historical study of structural and strategic change in Imperial Chemical Industries

gives testimony to the possibility of successfully studying structuring processes in which an organization and its divisions are the primary actors.

Finally, in addition to observations, interviews, and archival material, other documentary sources of data (e.g. sociometric questionnaires, formal records of procedures, etc.) collected intermittently are useful for gathering information on structuring processes. Such data can be used to augment fieldnotes on who typically engages in what sorts of interactions, and with whom. Likewise, after a sufficient period of observation, it may be useful to devise survey instruments for clarifying or supplementing observational data. However, we would emphasize that since the particulars of patterned action are often specific to the setting, questionnaires are unlikely to provide useful data on the interaction order unless they are based on detailed knowledge of the settings under study.

Researchers can begin the task of identifying scripts either after completing observations or at selected points during data collection. The latter strategy has the benefit of allowing researchers to develop ideas and hypotheses while there is time to acquire additional data. Four processes are crucial to identifying and analyzing scripts: (1) grouping the data by category or unit of observation, (2) identifying behavioural patterns (scripts) within categories, (3) identifying commonalities across scripts, and (4) comparing scripts over time.

Grouping Data

A system of categories for collecting and sorting data greatly facilitates identifying scripts. Although the types of categories used depend on the research project, experienced field researchers typically employ several broad categorization schemes for collecting observational data (see Lofland 1976). One such scheme targets *types of events or activities* that have discrete temporal and spatial boundaries and that are ecologically and culturally meaningful in the setting under study. Barley's (1990) decision to structure his observations around types of radiological procedures illustrates the use of such a framework. Because work in radiology departments is oriented to performing a specific procedure on a particular patient at a specific point in time, most activities and interactions meaningful to radiologists and technologists hinge on the execution of procedures, whose unfolding is typically highly structured. Moreover, because the unit is ecologically meaningful, Barley could begin and end periods of observation without artificially disrupting the flow of action.

A second scheme is based on *types of actors*, defined in terms that are relevant to the actors themselves. Such a scheme would focus attention on activities characteristic of those who fill a particular role and on interactions between people who occupy positions in a role set. For example, researchers interested in studying scripts associated with the institution of market-based control might focus their observations on

the patterned behaviours of corporate managers, department or sub-unit heads, line workers and support staff (see Whittington et al. 1994), and on the interactions that occur among the occupants of each role. This strategy would enable researchers to specify scripts that structure relations between support staff and line workers, line workers and sub-unit administrators, and so on.

Still a third scheme would be to organize observations around meaningful *types of behaviour*, such as expressions of conflict, coordination, or information giving. Thus, a researcher interested in accreditation might find it reasonable to organize her data by requests for information, clarification seeking, compliance with requests, overt denials of requests, etc.

Identifying Scripts within Categories

Having chosen a scheme for organizing observations, the analyst next focuses on identifying scripts, and on the patterns of action and interaction that occur within observational categories. The first task is to compile all incidents representative of a particular category, and then sort these incidents within categories according to the period of structuring in which they occurred. Analysis should begin with data from the baseline period. It is unlikely that all observations in a category will follow the same script, because categories generally encompass many scripts. Thus, one should not be disturbed by a multiplicity of patterns. The primary objective at this point is simply to identify observed orderings of behaviour that may represent a script and to understand the actors' interpretations of the scripts' logic as thoroughly as possible. Informants' explanations of their activities are relevant to this latter purpose, as are their reactions to violations of patterns. Violations of institutionally-based patterns are more likely to evoke emotional or moralistic reactions than are violations of patterns that are simply grounded in rational calculations of efficient action.

Prior knowledge of the setting and of the institution under investigation may permit researchers to anticipate some scripts. However, unexpected scripts inevitably emerge during the course of the study. This is particularly true when researchers are studying interaction orders with which they have little personal experience or that are in the process of changing. Close observation and careful recording increase the odds of identifying scripts, even though one may not recognize at the time that the events one is observing are either important or scripted. Meticulous recording is essential, because one cannot identify a pattern unless one has documented multiple instances of its occurrence.

Once the existence and relevance of a pattern become apparent, the researcher's job is to document the pattern's frequency. If the researcher analyzes his or her notes as the research progresses, it is possible to structure observations around emergent scripts. For example, after months of observation, in reviewing his field notes, Barley (1984) noticed that radiologists seemed to express their requests differently,

depending on the technology in use. Radiologists appeared to use fewer imperative sentences when interacting with those technologists who staffed computerized imaging devices. Tape recordings of the verbal exchanges that occurred as radiologists and technologists worked with different technologies later verified the differential distribution of this syntactical indicator of enacted dominance. Similarly, research focusing on scripted relations among different organizations or different departments might serendipitously uncover contextually related differences in the use of informal and formal communications (see Yates and Orlikowski 1992).

Identifying Commonalities across Scripts

Once analysts have identified scripts within categories for a particular time period, they can compare different scripts for commonalities or global properties. The notion here is that different scripts may represent alternate encodings of the same underlying institution. Actors are even less likely to be aware of underlying commonalities than they are of the scripts themselves. For instance, interactions between radiologists and technologists during the early days of CT scanning in one of the hospitals that Barley (1986) studied evinced a number of distinct scripts. One was the 'direction seeking' script discussed above. Another, 'direction giving', characterized interactions in which (1) a radiologist told a technologist what to do and (2) the technologist carried out the radiologist's orders without question. A third script involved incidents in which a radiologist 'usurped the scanner's controls' from a technologist by (1) approaching the scanner's console and (2) interrupting the technologist's work by pushing buttons or typing commands at the keyboard. Although different in content, all three scripts encoded the radiologists' professional dominance *vis à vis* technologists and the technologists' deference toward the radiologists.

Comparing Scripts over Time

After identifying and assessing commonalities among scripts associated with the baseline period, analysts will need to repeat the foregoing procedures for data collected after the occurrence of the event anticipated to affect the structuring process. If baseline scripts continue to be common in later periods and no new scripts arise, then one might conjecture that the interaction order has not changed and that the institution remains intact, at least as it is instantiated within the settings. On the other hand, if new scripts arise and the frequency of baseline scripts declines, then one can infer that the interaction order has changed. Whether the shift in the interaction order also signals a change in the institution under investigation depends, in large part, on whether the underlying logic of the scripts characteristic of different time periods has also shifted. For example, suppose one found that, before a shift to team-based systems, foremen routinely gave orders to workers, that order giving declined after the change, but that teams now routinely

sought directions from mid-level managers. One might not want to conclude that the institution of hierarchical authority had been seriously altered by the shift to teams.

An additional point is worth noting. Up to now, we have discussed the collection and analysis of data in terms of a simple comparison of social action and interaction before and after some exogenous change. In actuality, the data following an exogenous event may evince multiple periods. As discussed earlier, researchers are unlikely to anticipate such additional periods of structuring and, even after extensive observations, the existence of later phases may not be immediately obvious to the researcher. Consequently, researchers need to remain sensitive to the possibility of multiple phases defined primarily by observed shifts in the patterned properties of ongoing action. For example, Barley (1986) was able to estimate the approximate timing of the CT scanners' arrival in the radiology departments he studied. However, he was unable to foresee later events, such as personnel changes, that proved to be significant junctures in the history of scanner operations and that subsequently affected the evolution of the interaction order between technicians and radiologists (and, ultimately, the maintenance and change of institutional parameters). Unless researchers remain acutely sensitive to the possibility of additional, unanticipated partitioning points, they may misrepresent the dynamics and even the outcomes of the structuring process.

Validating the Link between Scripts and Institutions

Scripts allow researchers to systematically identify patterns of social interaction that encode institutional principles; that is, to 'see' an institution in day-to-day actions and to understand how actors' interpretations of those actions are related to the institution's reproduction or modification. However, scripts are, by definition, apt to be tied to a specific interaction order, and the relationship of such an order to others, that are also associated with an institution, is problematic. Hence, although one may wish to infer changes in an institution from a changing array of scripts, the inference is not foolproof, especially when researchers wish to speak to the fate of an institution beyond the settings they have studied. Moreover, making such an inference risks conflating actions with institutions.

Thus, to fully explore the extent and conditions of institutional change, it behooves researchers to compile evidence of institutional change or stability independent of the data from which scripts are derived. Ideally, such evidence would show that the trajectory of a set of scripts parallels the fate of the institution they presumably encode. According to our model of structuration, if scripts change, independent data on the institution should, ultimately, also provide evidence of change. If scripts remain unchanged, so should other indicators of the institution.

Analysts can use a variety of non-observational sources of data to assess

the fate of institutions across collectives. Documents such as training manuals, memoirs, legal records, journals, and newspaper articles offer rich sources of evidence amenable to systematic content analysis. Statistical data compiled by governmental and private sources on personnel distributions in organizations and occupations, legal violations and sanctions, collective action, the formation of organizations and so on, can also be useful. Such data may track changes in institutional parameters and help researchers assess the boundaries of such change. Insofar as they can be shown to vary with the same type of events that triggered changes in the interaction order, they may also provide support for the process-based conclusions drawn from the observational data.

Indices of the concern within the field of radiology for the proper role of a radiological technician illustrate how researchers can complement observational evidence on changing institutional parameters with artifactual data. Over the years, journals on radiology have paid varying amounts of attention to the 'problem' of technicians who interpret films. Articles and letters to the editor on the topic were relatively frequent before the American College of Radiology succeeded in gaining control over the training and certification of x-ray technicians. Afterwards, interest in the topic waned until the early 1970s when cybernetic technologies once again raised the specter of technicians usurping the core of the radiologists' role (Barley 1984). Fluctuating interest in the topic can be interpreted as evidence for the relative stability and change of the institution of professional dominance in radiology which pivots on restrictions regarding who can interpret medical images (Larkin 1983).³

Interestingly enough, after the advent of ultrasound, the first computerized and cybernetic imaging device, the number of published discussions on the rightful role of the technologist in a radiology department increased. Moreover, new journals targeted at sonographers published more articles on the interpretation of images than do journals read by x-ray technicians, whose activities and interactions are more consistent with the prohibition on technicians interpreting films (Barley 1984).

Several organizational indicators also support the thesis that computerized imaging devices have altered the interaction order of radiology departments and, consequently, the institution of professional dominance in radiology. During the early 1980s, sonographers established their own professional society and their own registry, both of which represented moves toward an occupational identity separate from that of radiological technologists in general. In sharp contrast to the tests that x-ray technicians take to become certified, the examination for sonographers includes questions on the interpretation of images. Pay scales for sonographers, CT technicians and special technologists are typically higher than those for x-ray technologists. Hospitals are increasingly treating CT, ultrasound, and special procedures as separate organiza-

tional units, distinct from the x-ray department. Finally, and perhaps most importantly, as the number of computerized imaging devices has grown, more and more radiology departments have begun to change their name to 'departments of medical imaging'. By tying such artifactual data to observational data gathered before and after the introduction of new technologies into radiology departments, Barley (1984, 1986, 1990) was able to articulate the link between technological change, patterned interactions among physicians and technicians, and changes in the institution of professional dominance in radiology departments.

Caveats on Interpreting Indicators of Institutional Change

The foregoing examples suggest how indicators of institutional parameters can change in tandem with the restructuring of interaction orders, as our model suggests they should. The mapping of changes in patterns of everyday action onto changes in organizational forms, privately and publicly articulated ideologies, and large-scale patterns provides the sort of rich insights that are crucial to a full understanding of the nature of macro-micro linkages and the reciprocal interplay between actions and institutions.

It is conceivable, however, that changing scripts will index a shift that occurs only in a given setting, perhaps because of the setting's particular characteristics (hence, the need for careful selection of sites), and that elsewhere, the institution remains unaffected. Likewise, it is possible that institutional change could affect other interaction orders, but not in the ones under study.

If widespread change is to occur across an array of interaction orders, a relatively large number of actors must alter their behaviour in similar ways. This is most likely to occur when common conditions affect many actors more or less simultaneously in much the same way (as occurs with a shift in an infrastructural technology) and when the social networks among actors are relatively dense. The degree to which changes in the interaction orders of particular settings can affect widespread institutions and the paths by which such changes unfold are empirical questions that still require considerable research.

It is also possible for an institution to seem to change without concomitant changes in interaction orders. For example, in theory, a significant proportion of a population of organizations can adopt formal policies and positions without producing discernable shifts in the day-to-day activities of their members (Meyer and Rowan 1977). Some would say that affirmative action and sexual harassment policies in U.S. organizations evince this property. Likewise, the passage of regulatory statutes may be of relatively little consequence in terms of an organization's observed activities.

We would submit that in such instances institutional change has *not* occurred. We leave open the question of whether, and under what

conditions, changes in formal structures can take place without actually affecting interaction orders. To our knowledge, this question has not been seriously addressed in either social theory or research. Our intuition is that the decoupling of formal structures and actions is apt to be rare and relatively short lived (see Tolbert and Zucker 1996).

In cases where institutional change *does* appear to have taken place, a final issue for research involves documenting the mechanisms through which the changes are encoded and, thus, preserved. The question is equivalent to asking how the fourth moment of the institutionalization process, externalization and objectification, proceeds. The methodology we have outlined does not directly address these dynamics. Instead, we have assumed that these processes must be occurring if artifactual indicators of an institution parallel changes in interaction orders. Researchers may find clues to how externalization and objectification unfold by examining documents associated with the formalization of changes and by studying socialization practices in work groups, schools and so on. Although externalization and objectification may be beyond the purview of most studies, it remains a critical element for establishing closure in the study of action-institution links.

Summary

Structuration theory and institutional theory provide complementary insights. Both share the premise that action is largely organized by institutions, widely held definitions of the behaviour and relationships appropriate for a set of actors. Both acknowledge that institutions are created, maintained and changed through action. Structuration theory, however, explicitly focuses on the dynamics by which institutions are reproduced and altered, an issue that has been largely neglected by institutional theorists. Nevertheless, as it is currently formulated, structuration theory provides little guidance on *how* to investigate the way in which everyday action revises or reproduces an institution.

Our aim has been to develop the implications of structuration theory for the interplay between actions and institutions and to address the practical problem of how to study institutional maintenance and change in organizations. We believe that the institutional perspective must come to grips with institutionalization as a process if it is to fulfill its promise in organization studies. To date, most empirical work inspired by institutional theory has concentrated on the diffusion of particular policies and practices (e.g. Fligstein 1990; Palmer, Jennings and Zhou 1993). Efforts to document the behaviours and decision-making processes that underwrite diffusion are virtually non-existent, and yet are particularly critical in understanding cases that do *not* involve some sort of legal coercion.

Although structuration theory deals directly with such dynamics, its abstract formulation has also made its empirical application a rare event,

although there are notable exceptions (see, for example, Stimpert et al. 1995; Orlikowski 1992; Orlikowski and Yates 1995; Poole and DeSanctis 1993; DeSanctis and Poole 1994). Thus, while both institutional and structuration theory promise important insights into the process of organizing, our ability to apply and test those insights has been limited. By offering some preliminary guidelines for studying institutionalization as structuration, we hope to spark further interest in and debate on the issue. We view our contribution as but an opening remark in a long-running conversation, and far from the final word.

In fact, by choosing to focus on the identification and analysis of scripts in our approach, we have consciously emphasized the behavioural and the structural rather than the cognitive and the cultural. Although we believe such an approach has value because it enables systematic empiricism, it does so at the cost of relegating interpretations to the background. Consequently, our approach is far less sensitive to the role that cognitions and interpretive frames play in the institutionalization process than are the methodologies employed by Pettigrew (1987), Willmott (1987) and other European students of structuration in organizations. What is required is a systematic exploration of the relative importance of behavioural and interpretive phenomena in the institutionalization process and, on the basis of such exploration, the fashioning of a set of methods that are sensitive to and systematic about documenting both cultural and structural dynamics.

Notes

1. Scott (1988) has identified four separate variants of institutional theory. In addition to the approach taken by Zucker and her colleagues and that developed by Meyer and his colleagues, Scott distinguishes Selznick's approach, which associates institutions with valued organizations, and a functionalist or Parsonian approach which identifies institutions with sectors of society that are characterized by distinct systems of values and beliefs. While the latter two clearly represent important approaches to the study of institutions, their influence in contemporary organization theory has been slight in comparison to that of the more recent camps. We, therefore, focus explicitly on more recent conceptualizations.

2. While socialization often connotes a specific period of time during which neophytes enter a group and learn its ways, we contend that such a connotation is too limiting. Socialization is a process that never ceases, because individuals are always being assigned new roles and adapting to changes in existing roles. To understand the role of socialization in the structuring process, we must not make the mistake of limiting socialization to a particular phase of a person's career in a social collective.

3. Although proscriptions against technologists interpreting films are central to the system of professional dominance in radiology, this particular proscription is relatively meaningless in other medical specialties. Yet, professional dominance is an institution that encompasses all medical specialties (Friedson 1970). The difference underscores a point we made at the outset: broad institutions may be represented by different scripts in different settings.

References

Archer, Margaret S.
1982 'Morphogenesis versus structuration: On combining structure and action'. *British Journal of Sociology* 33: 455-483.

Archer, Margaret S.
1989 *Culture and agency: The place of culture in social theory*. Cambridge: Cambridge University Press.

- Barley, Stephen R.
1984 'The professional, the semi-professional and the machine: The social implications of computer-based imaging in radiology'. Unpublished doctoral dissertation, Massachusetts Institute of Technology.
- Barley, Stephen R.
1986 'Technology as an occasion for structuring: evidence from observations of CT scanners and the social order of radiology departments'. *Administrative Science Quarterly* 31: 78-108.
- Barley, Stephen R.
1988 'On technology, time, and the social order: technically induced change in the temporal organization of radiological work' in *Making time: Ethnographies of high technology organizations*. Frank Dubinskas (ed.), 123-169. Philadelphia, PA: Temple University Press.
- Barley, Stephen R.
1990 'The alignment of technology and structure through roles and networks'. *Administrative Science Quarterly* 31: 61-103.
- Berger, Peter L., and Thomas Luckmann
1967 *The social construction of reality*. New York: Doubleday.
- Birr, Kendall
1957 *Pioneering in industrial research: The story of the General Electric research laboratory*. Washington, DC: Public Affairs Press.
- Blau, Peter M.
1970 'A formal theory of differentiation in organizations'. *American Sociological Review* 35: 201-218.
- Boisot, Max, and John Child
1988 'The iron law of fiefs: Bureaucratic failure and the problem of governance in the Chinese economic reforms'. *Administrative Science Quarterly* 33: 507-527.
- Burns, Tom
1961 'Micropolitics: Mechanisms of institutional change'. *Administrative Science Quarterly* 6: 257-281.
- Burns, Tom, and Helena Flam
1987 *The shaping of social organization: Social rule system theory with applications*. London: Sage.
- Burt, Ronald S.
1983 *Corporate profits and cooptation*. New York: Academic Press.
- Callinicos, A.
1985 'A. Giddens: A contemporary critique'. *Theory and Society* 14: 133-166.
- Covaleski, Mark, and Mark Dirsmith
1988 'An institutional perspective on the rise, social transformation and fall of a university budget category'. *Administrative Science Quarterly* 33: 562-587.
- DeSanctis, Gerardine, and Marshall Scott Poole
1994 'Capturing the complexity in advanced technology use: Adaptive structuration theory'. *Organization Science* 5: 121-147.
- DiMaggio, Paul
1988 'Interest and agency in institutional theory' in *Institutional patterns and organizations: Culture and environment*. Lynne Zucker (ed.), 3-22. Cambridge, MA: Ballinger.
- DiMaggio, Paul
1991 'Constructing an organizational field as a professional project: U.S. art museums, 1920-1940' in *The new institutionalism in organizational analysis*. W. Powell and P. DiMaggio (eds.), 267-292. Chicago: University of Chicago Press.
- DiMaggio, Paul J., and Walter W. Powell
1983 'The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields'. *American Sociological Review* 48: 147-160.
- du Gay, P., and G. Salaman
1992 'The cult(ure) of the customer'. *Journal of Management Studies* 29: 615-633.
- Fligstein, Neil
1990 *The transformation of corporate control*. Cambridge, MA: Harvard University.

- Friedson, Elliot
1970 *Professional dominance: The social structure of medical care*. New York: Atherton.
- Giddens, Anthony
1976 *New rules of sociological method*. London: Hutchinson.
- Giddens, Anthony
1979 *Central problems in social theory*. Berkeley, CA: University of California Press.
- Giddens, Anthony
1984 *The constitution of society*. Berkeley, CA: University of California Press.
- Goffman, Erving
1983 'The interaction order'. *American Sociological Review* 48: 1-17.
- Hinings, C. R., J. L. Brown, and Royston Greenwood
1991 'Change in an autonomous professional organization'. *Journal of Management Studies* 28/4: 375-393.
- Hughes, Everett C.
1936 'The ecological aspects of institutions'. *American Sociological Review* 1: 180-189.
- Hughes, Everett C.
1939 'Institutions' in *An outline of the principles of sociology*. Robert E. Park (ed.), 283-346. New York: Barnes and Noble.
- Jepperson, Ronald
1991 'Institutions, institutional effects and institutionalism' in *New institutionalism in organizational analysis*. W. Powell and P. DiMaggio (eds.), 143-153. Chicago: University of Chicago Press.
- Kline, Ronald
1987 'The origins of industrial research at the Westinghouse Electric Company, 1886-1922'. Unpublished manuscript. Program in History and Philosophy of Science and Technology, Cornell University.
- Larkin, Gerald V.
1983 *Occupational monopoly and modern medicine*. London: Tavistock.
- Layder, D.
1987 'Key issues in structuration theory: Some critical remarks'. *Current Perspectives in Social Theory* 8: 24-46.
- Lawrence, Paul R., and Jay W. Lorsch
1967 *Organization and environment: Managing differentiation and integration*. Homewood, IL: Richard D. Irwin.
- Lofland, John
1976 *Doing social life: The qualitative study of human interaction in natural settings*. New York: Wiley.
- Manning, Peter K.
1982 'Organizational work: structuration of environments'. *British Journal of Sociology* 16: 444-459.
- Meyer, John W., and Brian Rowan
1977 'Institutionalized organizations: formal structure as myth and ceremony'. *American Journal of Sociology* 83: 340-363.
- Meyer, John W., and W. Richard Scott
1983 *Organizational environments: Ritual and rationality*. Beverley Hills, CA: Sage.
- Mintz, Beth, and Michael Schwartz
1985 *The power structure of American business*. Chicago: University of Chicago Press.
- Noble, David
1984 *Forces of production: A social history of industrial automation*. New York: Knopf.
- Oliver, Christine
1991 'Strategic responses to institutional processes'. *Academy of Management Review* 16: 145-179.
- Orlikowski, Wanda J.
1992 'The duality of technology: Rethinking the concept of technology in organizations'. *Organization Science* 3: 398-427.
- Orlikowski, Wanda J., and JoAnne Yates
1995 'Genre repertoire: The structuring of communicative practices in organizations'. *Administrative Science Quarterly* 39: 541-574.

- Palmer, Donald, P. Devereaux Jennings, and Xueguang Zhou
1993 'Late adoption of the multidivisional form by large U.S. corporations: Institutional, political and economic accounts'. *Administrative Science Quarterly* 38: 100-131.
- Parsons, Talcott
1951 *The social system*. New York: Free Press.
- Pettigrew, Andrew
1985 *The awakening giant: Continuity and change in ICI*. London: Basil Blackwell.
- Pettigrew, Andrew
1987 'Context and action in the transformation of the firm'. *Journal of Management Studies* 24: 649-670.
- Poole, Marshall Scott, and Gerardine DeSanctis
1993 'Microlevel structuration in computer-supported group decision-making'. *Human Communication Research* 91: 5-49.
- Powell, Walter, and Paul DiMaggio
1991 *The new institutionalism in organizational analysis*. Chicago: University of Chicago.
- Ranson, S., Robert Hinings, and Royston Greenwood
1980 'The structuring of organizational structures'. *Administrative Science Quarterly* 28: 314-337.
- Riley, Patricia
1983 'A structurationist account of political cultures'. *Administrative Science Quarterly* 28: 414-437.
- Scarborough, Henry
1993 'Problem-solutions in the management of information systems expertise'. *Journal of Management Studies* 30: 939-955.
- Schank, R. C., and R. P. Abelson
1977 *Scripts, plans, goals, and understanding*. Hillsdale, NJ: Lawrence Erlbaum.
- Scheid-Cook, Teresa
1992 'Organizational enactments and conformity to environmental prescriptions'. *Human Relations* 45: 537-554.
- Scott, Richard
1988 'The adolescence of institutional theory'. *Administrative Science Quarterly* 32: 493-511.
- Scott, W. Richard, and John W. Meyer
1987 'Environmental linkages and organizational complexity: public and private schools' in *Comparing public and private schools*. Henry M. Levin and Tom James (eds.), 128-160. New York: Falmer Press.
- Scott, W. Richard, and John W. Meyer
1994 *Institutional environments and organizations: Structural complexity and individualism*. Thousand Oaks, CA: Sage.
- Selznick, Philip
1949 *TVA and the grass roots*. Berkeley, CA: University of California Press.
- Selznick, Philip
1957 *Leadership in administration*. New York: Harper and Row.
- Sewell, William
1992 'A theory of structure: Duality, agency and transformation'. *American Journal of Sociology* 98: 1-29.
- Shaiken, Harley
1984 *Automation and labor in the computer age*. New York: Holt, Rinehart, and Winston.
- Stimpert, J. L., Anne Huff, James Huff, and Jung-Taik Oh
1995 'Entrepreneurial entry and industry structuring'. Paper presented at the Conference on 'Action, Structure and Organizations', Paris, France.
- Strang, David
1994 'Institutional accounts of organizations as a form of structural analysis'. *Current Perspectives in Social Theory* 1: 151-174. Greenwich, CT: JAI Press.

- Sutton, John, Frank Dobbin, John Meyer, and W. Richard Scott
1994 'The legalization of the workplace'. *American Journal of Sociology* 99: 944-971.
- Tolbert, Pamela S.
1985 'Resource dependence and institutional environments: sources of administrative structure in institutions of higher education'. *Administrative Science Quarterly* 30: 1-13.
- Tolbert, Pamela S., and Lynne G. Zucker
1983 'Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform, 1880-1930'. *Administrative Science Quarterly* 30: 1-13.
- Tolbert, Pamela S., and Lynne G. Zucker
1996 'Institutionalization of institutional theory' in *Handbook of organizational studies*. S. Clegg, C. Hardy and W. Nord (eds.). London: Sage.
- Whalley, Peter
1986 'Markets, managers of technical autonomy'. *Theory and Society* 15: 223-247.
- Whittington, Richard
1992 'Putting Giddens into action: Social systems and managerial agency'. *Journal of Management Studies* 29: 693-712.
- Whittington, R., Terry McNulty, and Richard Whipp
1994 'Market-driven change in professional services: Problems and processes'. *Journal of Management Studies* 31: 829-845.
- Willmott, Hugh
1987 'Studying managerial work: A critique and a proposal'. *Journal of Management Studies* 24: 249-270.
- Woodward, Joan
1958 *Management and technology*. London: HMSO.
- Yates, JoAnne, and Wanda J. Orlikowski
1992 'Genres of organizational communication: A structural approach to studying communication and media'. *Academy of Management Review* 17: 299-326.
- Zucker, Lynne G.
1977 'The role of institutionalization in cultural persistence'. *American Sociological Review* 42: 726-743.
- Zucker, Lynne G.
1983 'Organizations as institutions' in *Research in the sociology of organizations*. Sam Bacharach (ed.), 1-47. Greenwich, CN: JAI Press.
- Zucker, Lynne G.
1986 'Production of trust: institutional sources of economic structure: 1840 to 1920' in *Research in organizational behavior*. L. L. Cummings and Barry Staw (eds.), 55-111. Greenwich, CN: JAI Press.
- Zucker, Lynne G.
1987 'Institutional theories of organizations'. *Annual Review of Sociology* 13: 443-464.
- Zucker, Lynne G.
1991 'Postscript: Microfoundations of institutional thought' in *The new institutionalism in organizational analysis*. W. Powell and P. DiMaggio (eds.), 103-107. Chicago: University of Chicago Press.
- Zucker, Lynne, Michael Darby, Marilyn Brewer, and Yusheng Peng
1995 'Collaboration structure and information dilemmas in biotechnology: Organizational boundaries as trust production' in *Trust in organizations*. R. Kramer and T. Tyler (eds.), 90-113. Newbury Park, CA: Sage.