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Complex Organizations
Week 10 Summaries

- Scott, W. Richard. 1998. "Organizations as Open Systems." Pp. 82-100 (Ch. 4) in *Organizations: Rational, Natural, and Open Systems*, 4th edition. Upper Saddle River, New Jersey: Prentice-Hall.
- Scott, W. Richard. 1998. "Conceptions of environments." Pp. 123-148 (Ch. 6) in *Organizations: Rational, Natural, and Open Systems*, 4th edition. Upper Saddle River, New Jersey: Prentice-Hall.
- Scott, W. Richard. 1998. "Sources of Structural Complexity: The Peripheral Components." Pp. 258-284 (Ch. 10) in *Organizations: Rational, Natural, and Open Systems*, 4th edition. Upper Saddle River, New Jersey: Prentice-Hall.
- Aldrich, Howard E. and Jeffrey Pfeffer. 1976. "Environments of Organizations." *Annual Review of Sociology*. 2:79-105.
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Chana Barron
Week 10 Summary

The primary issue on which this week's readings focus is the relationship between an organization and the environment within which it exists. This issue causes us to look at the open system perspective and its various schools and the questions related to the way in which these schools conceptualize organization environment. We are confronted with the importance of defining our terms.

We begin with an overview of the open systems perspective. Scott provides us with a framework in the first of his three articles, "Organizations as Open Systems." He sets forth the characteristics and contributions of open systems perspective and introduces us to the different schools that employ the perspective. Using the work of Boulding who set out a classification of system type an open system is one that is able to maintain itself based on resources derived from the environment. As the system becomes more complex it is able to grow and change and becomes more open to the environment. The open system perspective acknowledges that systems have elements that are weakly connected – i.e., there are loose couplings of normative structure, behavioral structure and among the structural units. Moreover, those in key positions do not constitute a single hierarchy but, rather, constitute a coalition of shifting interest groups that are loosely linked. Open systems can ameliorate problems through interaction with the environment. Of particular importance is the fact that a close connection exists between the system characteristics and the condition of the environment. This raises one of the key issues in this field, pointed out by Scott, is the question of determining where the boundary lies between the environment and the system. This question is central to our understanding and conceptualization of the environment.

After acquainting us with the general characteristics of open systems Scott provides an introduction to the schools of the open system perspective. The system design and contingency theory schools both approach organizations from the structural perspective. The system design advocates are interested in the flows of information, energy and materials throughout the organization. With this information design decisions may be made. The approach is a holistic one. Contingency theorists proceed from the position that there is no one best way to organize. Rather, there are numerous options with the best/most effective organization being the one that allows the internal features to match the environment. Design decisions depend on environmental conditions. The other school Scott addresses is the Weick model which focuses on the social-psychological level. Weick shifts from structure to process but the concern still lies with the interdependence of the organization and the environment. Organizing is aimed at information processing and reducing uncertainty through the interrelated behaviors of enactment, selection and retention, which we will address more fully later.

We have been talking about environment, but, just as we noted the problem with boundaries in discussing open systems, we are faced with a similar problem here. How do we define environments, where do we find the relevant factors and how do we assess them? Scott, in “Conceptions of Environments,” offers some guidelines. He begins with the analysis of environments and maintains that the level of analysis is an ecological one with four sublevels that can be employed in looking at environments. The first of these is organization sets which look at organization practices in its various relations – it relates the organization of interest to other organizations based on its products and services. It does not focus on the larger system. The second level is organization populations. Here, organizations that are alike are considered. This level is used in natural system theories including the population ecology model that is addressed in the Perrow article. We must be aware that again there is a definitional problem in saying we look at organizations that are alike in some respect. What does this mean – what respects are we talking about? Do our results/ conclusions change if we consider different factors? How do we standardize. The next level is the interorganizational community which concentrates on relations among a collection of organizations within a specific, limited geographical area. Here, we are concerned with the way in which resources are distributed and how organizations sharing the same environment must take into account the behavior of others. Finally, there is the organizational field level or analysis where we are dealing with a system of organizations (similar and dissimilar) operating in the same real and defined by horizontal and vertical relations links. Scott also discusses the characteristics of environments and the interdependence of organizations and environments. Scott notes that organizations influence environments just as environments influence organizations. Scott relates this view to different open system theorists maintaining that contingency and resource dependent theorists contend that organizations consciously shape the environment by changing structure, while population ecologists assert that organizations have difficulty changing and if the environment changes organizations will fail and be replaced by new organizations.

The resource dependency model that Scott discussed is examined more closely in the Aldrich and Pfeffer article. It is one of the two paradigms presented for examining organization-environmental relations. Resource dependence theory rests on the idea that organizations must interact with the environment in order to obtain all resources needed since they cannot be obtained internally. As noted, there is a shaping of structure, the environment and the organization are managed actively. The authors stress that organizations have a choice of actions that are consistent with survival and that all decisions do not involve survival nor are they all effected by the environment. This theory is contrasted with the natural selection model which maintains that environmental factors select organizational characteristics that best fit the environment. It is the environment that determines the selection rather than the managers as in the resource dependence theory.

Perrow discusses the population ecology model referred to by Scott. An evolutionary perspective emerges from this model – one in which the “patterns of activities” that are of most use will be maintained and society will evolve in more efficient ways. What emerges is essentially two different conceptions of organizational relations to the environment. One in which the environment acts on the organization with the organization in some way being passive and without control. The other perspective posits an interaction between the two with each influencing the other. The organization takes a role in structuring relations with the environment not only to survive but also to flourish. It is hard to accept the notion that organizations have little to say about their survival. This position, Perrow indicates has been modified and now recognizes some ability on the part of the organization to adapt to the environment.

Perrow and Aldrich & Pfeffer also address the three steps in the process of social change that was referred to earlier – variation, selection and retention. Variation is the first step where behavior may be intentionally or unintentionally changed. In the second step some variations are eliminated because they do not serve the organization. Others are reinforced because they work. In the final step the variations that worked and have been reinforced, are retained through the use of some mechanism. The authors apply the process to the models proposed and demonstrate how they support or undermine the theories. Aldrich and Pfeffer argue that the natural selection model is indifferent to the source of variation or change and this undermines its effectiveness in describing organization-environment relations.

Perrow also reviews work by evolutionary theorists which demonstrates the changes in the theory that make it more useful in conceptualizing the environment and employing the conceptualization to understand what is occurring and how it can be modified for the benefit of organizations. Perrow also talks about networking as a means of conceptualizing environment and recommends that whatever the level of analysis used researchers should examine the levels above and below the level of interest. This would give a more comprehensive picture of the actual relationship. He demonstrates this in part in his hospital hypothetical and his discussion of the Model Cities program. It becomes clear that our understanding of what is happening and the connections between the various elements is captured best by looking at the most complete picture and not focusing on only one level.

Throughout the week’s readings we see connections to areas we have been studying. Issues of differentiation, formalization and bureaucracy are raised when we consider structure in the context of organizations and environment. So too does size have a place in our considerations as pointed out in the final Scott article. Strategies for buffering and bridging the effects of the environment on the organization and vice versa play a role in adaptation to the organization’s benefit.

Once you consider the environment you have to abandon the rational systems perspective because there is no way to effectively control the environment, even if we severely delimit its

boundaries. Although we do recognize, particularly from the Perrow discussions of the music, pharmaceutical and hospital industries, the importance of political connections which are far outside the usual boundaries for an organizational environment.

While we now have some basis for conceptualization of the environment we are still a long way from a consistently agreed upon and used definition of the environment and its boundaries. With such a definition/conceptualization we can collect the data that will help us in assessing what is important in the interactions between the environment and organizations and determining what factors are critical.

Lois Buntz

Week 10 Summary

ORGANIZATIONAL ENVIRONMENTS

Although the topic of “environments” was the focus of study this week, the previous readings and theories of organizations have all included environmental aspects. Work groups, teams, and technological systems are all aspects of environments on an internal level, although we have tended to view them as structural components. The complex marriage of internal systems/structures and external factors (political, social and economic environments) create organizations that are difficult to define and even more difficult to study. I found the readings particularly interesting and relevant, because the current “culture” in the social service industry is very focused on collaborations and highly interactive with external environments.

Scott’s essay of organizations as “open systems” sets the stage by listing Boulding’s definitions of system levels, moving from simple to complex. It also begins to address the issue of environment as it affects organizational policy and programming. By identifying the feedback or double loop process the continuous interaction between the environment and the organization is evident. Without information from the external systems, the organization cannot know if it is meeting customer needs and adequately responding to environmental conditions. This open systems concept seems quite rational and functional.

Frequently I teach students in the social policy class that environmental factors always influence their work with clients. For example, social policy leads to laws that create administrative rules, these create funding that agencies apply for and programming for clients determines what service you provide. Within this system, the organization has the flexibility (depending on the bureaucratic rules) to create internal structures and systems that match their culture, meet defined goals and hopefully help clients. This allows the organization to design systems that address operational needs of the organization. As contingency theory outlines, “there is no best way” to organize.

The vast amount of choices in organizing operations links Weick’s model to March’s ideas about decision-making. How can managers develop systems when the array of choices, problems and solutions is so large? It must be contained and managed for efficiency and the sanity of all who work within an organization. The other side of the equation is the question of “when organizations respond, will it fit with the environment?” If it does the organization will survive and perhaps grow, if it doesn’t the environment may eliminate the organization – the natural selection process.

Analysis of organizations can occur on many different levels. Scott outlines the concepts of organization sets or domains, (products, services and clients served), organizational populations, interorganizational communities and organizational fields. This level of analysis makes research more feasible, but is more difficult today as companies move fluidly among many different domains, serve many different populations and develop a wide range of products. For example Phillip Morris in an attempt to distance itself from the tobacco industry is extensively promoting its food related products. We see many ads for food pantries, Meals on Wheels and other social causes. Is this an attempt to change its image and create public support? Organizations are less definable than previously, and must be highly responsive to the political and social environment. The point of analysis also determines how the organization may choose to respond. Some may change products, populations or link for increased resources. One of the most puzzling questions, is where does the organization end and environment begin?

Perrow provides good case examples of the music industry and health care industry demonstrating how these internal systems conflict with external systems. An artist's great idea has many levels of approval to navigate through before the music or art gets promoted in the external world. Perrow's cases also illustrate how control is exercised on many different levels and the Marx's conflict of workers and management now gets extended to management and the external environment. Conflict is inevitable and not necessarily bad. One of the questions raised by Perrow is what is the objective? Is it profits, a social statement, a political agenda? Analyzing this is quite complex and creates huge issues for organizations.

Scott continues to provide direction about analysis by his discussion of institutional and technical aspects of organizational environments. Institutional aspects relate to cultural and symbolic factors while technical aspects are more material and resource focused. Some organizations are highly dependent on the environment that they operate within due to governmental rules or policies. The ability of the organization to effectively communicate with the environment is essential for its survival. At our agency, I am constantly mixing internal programs and policies with county, state and federal regulations. There is limited stability in organizations due to the constant fluctuations in the external systems, that is why size and diversification become important. Size can buffer departmental and programmatic changes, while diversification allows different departments, products or services to ebb and flow. Currently we use 25-35 different funding sources and have 15-20 services. If one external funder chooses not to do business with our agency, the organization can survive. Diversification and size ensure the continuation of other services or products.

This diversification is exemplified with the M-form structure that is quite prevalent in organizations today. Although mergers and acquisition are still part of organizations managing or controlling their environment, we are also seeing new models of organizational structures. Alliances, affiliations, networks and partnerships are less permanent structural changes which allow organizations the flexibility to constantly adapt. This loose coupling approach works both internally and externally. It does not provide formal bureaucratic controls, but allows flexibility, and high response to uncertainty. Workers must be trusted and decision-making is pushed down to lower levels in the organization. The old models of control no longer work as well in the new social environment.

Aldrich and Pfeffer offer two theoretical perspectives that relate to environmental selection of organizations, the “fit” within the environment. Using the Natural Selection Process and Resource Dependent Model, they describe the differences and continue the question of why are there so many organizations and why do some survive while others don't? I would add the survival isn't the only goal, effective products and services must be involved or survival is time limited.

The Natural Selection process is evolutionary and biologically based. As organizations respond to environmental changes, they create variances internally or the environment may prompt new organizations or variations of old models to develop. The environment chooses which variances are important and selects some organizations, while eliminating others. There is an internal decision making component to this, because managers must make choices. One example of this is the outdated concept of orphanages. In the early 1900's until 1960, many of these were in existence. Due to social changes, releasing children for adoption is now chosen by only 5% of unmarried mothers. There was no longer a need for this type of organization. Today most organizations that were orphanages have become institutions for emotionally disturbed children, not homeless children.

The Resource Dependent model focuses more on finding external resources to continue the work of the organization. Those organizations that are very successful at this, will survive. Some organizations are also more dependent on external resources and the need to develop the skills to negotiate resources is more critical. This is an intensive political and economic process. Large corporations control this variable by buying the companies that have the resources they need, thus controlling it all.

Both models offer interesting perspectives to how organizations manage their environments, although the answers are still vague and highly dependent on the changing condition in society.

P.S. One point of confusion I have run across in several articles is the assumption on the part of researchers that social service agencies due to government funding have no competition. This is a very outdated notion. Today we compete with for- profits and other non-profits. Just a point of clarification.

Kevin Childers

Week 10 Summary

This week's readings address environments and organizations. In particular they discuss the somewhat reciprocal relationship between environments and (only somewhat because the effect of environments seems stronger and more influential than that of organizations on their environments). These readings also tie in several aspects of previous week's readings, which I cover below.

Aldrich and Pfeffer present (as does Perrow, only with empirical? examples, so I focus on A&P here) the dominant models of organizational environments: natural selection model and resource dependence model (also called political economy, and dependence exchange). Natural selection, the authors point out has three stages/characteristics: variation in the environment must exist (such as competitors, some newly introduced, changing modes of behavior, or innovation), some selection criteria to select some variations over others (usually through some interaction between internal organizational structures – which they later characterize as an internal environmental pressure – and external environmental pressures), and retention where variations are preserved, duplicated, or reproduced. This model applies, the authors argue, more in long-term terms than in the short-term.

Resource dependence models, according to the authors, address organizational decision making in relation to environments. Resource dependence posits that organizations must transact with their environments for resources they need. Organizations often must compete with other organizations in their environment for those resources and thus they develop strategies to limit their competition's access to those resources: vertical integration and horizontal integration (also called mergers and acquisitions). They limit access of competitors to resources so as to assure their survival. Administrators within organizations manage both their organizations and the environments in which they exist. A key difference between natural selection and resource dependence models is the emphasis (by resource dependence models) on strategic decision-making by org. members.

Since organizations do not impose specific criteria for survival, several strategies might emerge to do so. As such organizational decision-making (picking a strategy or strategies to survive) become important. Also important are internal power differences within an organization and subunit influences.

These ideas relate in several ways to readings from previous weeks. For instance, the overall system is an evolutionary one, although the authors point out, as does Perrow that this is not a purely organic model (so not "pure" evolution). The evolutionary model implies that there is a progression from a less to a more complex system, an argument made by both Marx and Weber about the division of labor in society. I see another tie to Marx and Weber in the retention aspect of natural selection models. That is, retention involves "the retention and

transmission of knowledge from one generation to the next.” which resonates of bureaucratic routinization through written rules, strict role prescriptions, and placing power in positions and not people. I would not argue this is the only way in which retention works, simply that it sounds similar and may be one way. Another way (to “enforce” retention) may be in the succession of managers and/or owners within organizations.

Natural selection implies moving toward a better fit of an organization with the environment, an argument seen through this semester but particularly (in my mind) evident in STS theory. There is also a reintroduction of STS theoretical analyses in discussing how organizational change happens at two levels, that of the organization and at the population level. Recall that STS theory involved analyses at the group level, organization level, and system level.

A&P (wasn't that a grocery store?) discuss how organizations might monitor the environment and borrow successful innovations in structure or conduct from other organizations. This comes most directly from readings last week about scouting and spy functions (tasks?) or groups within organizations.

One unique character Perrow adds is the discussion of network implications among organizations within an environment. He discusses how connections among organizations, particularly those not completely overlapping (such as with hospitals being tied to universities, medical schools, nursing schools, and research agencies). Aspects of networks such as communication flow, density, overlapping directorates, transitivity, and directionality, among other characteristics, affect how organizations trade resources and navigate other aspects of their environments.

Scott Fitzgerald

Week 10 Summary

Scott (1998) describes the open system perspective as emphasizing both the structure and process of organizational systems. From this perspective organizational parts are conceptualized as being semiautonomous and often loosely coupled. Further, attention is given to the interdependence of these parts and the environment. Several schools of research exemplify this approach: systems designs (emphasizing the “synergistic” aspect of organizational component relations), contingency theory (emphasizing the “fit” between organizations and environments); and Weick’s social psychological model (emphasizing the micro-level effects of open systems).

Next, Scott specifies four levels of analysis used for the conceptualization of environments: organization sets, organizational populations, interorganizational community, and organization fields. Within each of these levels it is useful to distinguish between institutional (i.e. symbolic and cultural factors) and technical aspects (i.e. materialist and resource-based features). For example, an analysis that examined the institutional aspects of a specified organizational set might focus on how regulative, normative, and cultural-cognitive systems shape the structure and activities of the organizational set of interest.

Finally, Scott identifies organizational efforts to adapt to and modify the task environment. In short, structural features (e.g. size; loose coupling; levels of bureaucratization, differentiation, formalization, and centralization) can be conceptualized as responses to environmental demands and constraints.

Aldrich and Pfeffer (1976) provide a review of two models of organization-environment relations: ecological model and the resource dependence model. The ecological model is drawn from evolution theory and is premised on the notion of natural selection. Natural selection takes place in three stages: (1) planned or unplanned variations emerge, (2) the presence of consistent selection criteria allows some variations to survive and others to die, and (3) a retention mechanism operates to maintain the variations that survived the selection process. This model is used to examine how populations of organizations change. This approach often runs into the same logical problems faced by functionalists—tautological argumentation. The ecological model does not address how decisions are made that effect organization survival. In contrast, the resource dependence model conceptualizes organizations as active units of change that respond to external pressures by attempting to garner resources and services from their environment. The authors argue that these two approaches can be viewed as complimentary explanatory models that, in tandem, explain both how and why organizational populations change.

Perrow describe the workings of the popular music industry and the pharmaceutical industry to illustrate environmental effects on organizations. One contribution of this piece is the identification of state power as the “single most important means of controlling an environment”(1986:190). Previous discussions have implied that market forces are the key

environmental forces at work. While the import of the market is undeniable it behooves us to remember that the state often has a profound effect on the market through (a) regulation, (b) taxation, and (c) sheltering certain industries from the contingencies of the market. A second contribution of this article is the conceptualization of environments as a 'nested-box problem'. This conceptualization is important because it forces us to distinguish between levels of analysis when thinking about environments. Further, this allows further distinction between vertical and horizontal networks of organizations.

Although each reading this week focused on the relationship between organizations and environment a clear definition of environments was lacking. Perrow's discussion leads us in a fruitful discussion but contains limitations. The concept of environments used in this literature seems a bit too amorphous to be analytically useful. There are at least two possible responses to this ambiguity. The concept can remain conceptually vague and we focus *only* on organizational responses and processes. This way we assume that environments matter but since we cannot specify what an environment is we skirt the issue and only look at how organizations act within the context of assumed constraints. The problem with this approach is that it creates a default definition of environments as that which effects organizations. Therefore, all organization actions are assumed to be responses to the environment. Not only does such a conception run the risk of circular and tautological logic it does not tell us *anything* about environments. The other possible response is to develop a more precise, nominal definition, that specifies the level of abstraction and characteristics of the 'environment' that is relevant to our particular interests and theoretical orientation. This second approach is quite obviously, the more rewarding and is indeed the direction Perrow attempts to lead us toward.

Christopher Moore

Week 10 Summary

Different perspectives exist as to how organizations relate to their environment - are they purely reactive and/or adaptive, or are they able to influence and in fact choose their environments? To regress to an even more basic level, what is an environment? These issues will be the topic from which I will compare the readings for Scott (1998), Aldrich & Pfeffer (1976) and Perrow (1986); as well as others as they fit into the dialogue.

Scott (1998) explains that one's conceptualization of the environment must be related to the level of organizational analysis. Aldrich & Pfeffer (1976) echo this claim by suggesting that on one hand the natural systems model provides the strongest argument for incorporating considerations of the environment. Specifically, that environments select out organizations to "live or die" based on their ability to match their structures to the characteristics of the environment. On the other hand, and still related to the first, perspectives that emphasize internal and external environments such as political economy, resource dependency, etc. suggest that organizations may in fact have the ability to elect into certain environments and even change them to their needs. Perrow's (1986) empirical work of the music and pharmaceutical industries demonstrate such activity. Perrow also suggests that although in the past task orientation and technology have been the focus of inquiry, research shows that they are no longer the key determinants of structure. Instead, an increasing realization that the environment, particularly the industry is key is occurring. Perrow also presents an ecological model of social change that incorporates the environment into its scheme as a source of variation and selective mechanism (natural-systems type).

Scott provides four levels of analysis: organizational sets, organizational populations, interorganizational communities, and organizational fields. The idea of organizational sets is analogous to Merton's "role sets." they are a set of organizational actors that are grouped according to the degree of overlap between their *domains* - range of products and services, and clients, consumers, suppliers, etc. Organizational populations are aggregates of organizations that share some substantive, often product-determined, intuitive commonalities - such as all publishing firms. Such a group is similar to the notion of a generalized industry. Interorganizational communities contain both organizational populations as well as other types of organizations that share a specified geographical space. Perhaps the most common conceptualizations of environments or contexts occurs at this level. Finally, organizational fields are defined by shared sets of relational linkages and cultural norms, rules, and meaning systems. The underlying assumption of all perspectives is that the environment provides the raw materials (however defined and manipulated) that make up the organization.

Additionally, one's theoretical perspective and substantive interests determine what they are trying to determine about organizations, what is valuable to study, and thus how the environment

may be conceptualized. Open systems perspectives suggest that we view organizations and their environments as interdependent. The environment is capable of directly influencing and constraining organizational action and structure, but organizations also possess relative capacity to alter and in some cases, select new environments.

Scott begins by reminding us of the systematic nature of organizations. Drawing from Boulding's (1956) typology, Scott suggests that cybernetic systems and open-systems perspectives may be characterized according to the level of complexity to which they apply. The relatively closed, less complex, *cybernetic* systems (referring to the flow of resources between systems of control, operations, and policy) are capable of self-regulation and their efforts are concretely directed (not merely orientated) towards a specific goal. The key to the operation of this system is its *program*. The operation of the system is seen as a purely *responsorial* activity, with the organizational actors behaving in response to the environment in accordance to the directives of the pre-existing program. Such a system presumes a less restricted (*non*-bounded rationality) ability of management to respond and accurately predict "good" courses of action. This system presumes a tight coupling (vertical and horizontal) between units, and willingness on the part of these units to work towards a known group goal and a relative disregard for the loosely-coupled units they may never-the-less have a significant impact on.

However, viewing organizations as loosely-coupled systems allows researchers to examine systems and organizational units that one hand are only loosely connected to each other and the organization, but never the less have an impact on behavior and are capable of autonomous, self-interested action. Pfeffer and Salancik (1978) suggest that, "The organization is a coalition of groups and interests, each attempting to obtain something from the collectivity by interacting with others, and each with its own preferences and objectives (excerpt from Scott Pp. 88)." Such a view is consistent with the previously mentioned *political economy* approaches. Finally, contrary to purely rational perspectives, the loose coupling approach views the organization as highly adaptive *as a whole*. However, loose coupling may contribute to the "productivity paradox" in that while resources are allocated towards improving information flow and technology, little return in the form of greater productivity may be realized.

This leads us to the concept on *entropy* - linked to the 2nd Law of Thermodynamics. Specifically, entropy refers to the existence of a loss/waste of energy that cannot be converted to work. The nature of open systems allows them to import energy from the environment, create a state of *negentropy* (Scott Pp. 90). This ability to access increasingly environmental inputs that are increasingly more complex than their outputs results in a net gain of negtropic energy and enables systems to repair and improve themselves. An open-systems perspective thus states that the source of system maintenance, diversity, and complexity is the environment. The "Law of Limited Variety" (or "requisite variety" according to Perrow (Pp.209) summarizes this notion by maintaining that complex organizational systems cannot be maintained in simple environment...basically, the complexity of the organization must match that of the environment

in order for it to survive (91). If the system is too complex (more than its environment), it is being wasteful of its resources. If it is not complex enough, it will be unable to compete with other organizations (within and making up its environment).

Contingency theory, complexity theory, and chaos theory all contain elements of this kind of logic. To illustrate, contingency theory, which grew out of the systems analysis approach, contains two (possibly three) general rules. This idea is in direct contradiction with Taylor's scientific management perspective. Specifically, the first "rule" is that there is a single best way to organize systems (or taken further, work itself). The rationale for this claim is contained in the second "rule" that states that organizational schemes vary in their efficiency, depending on environmental context. The third "rule" that I consider to be a part of the paradigm, but not formalized by its progenitors, is the claim that the reason that the first two rules hold is that organizations must be ever vigilant to adjust to the "contingencies" in their environment in order to match their systems of operations to the characteristics of their environment.

Chapter 10 of Scott primarily dealt with the determinants of organizational structure...not conceptualizations of the (external) environment. However, it is worth briefly including some of the material within it to add to our understanding of environments. As we have seen earlier in the dual-economy literature, Scott the core and periphery sectors in their degree of responsiveness to various forces such as technological advances, organizational size, task, and institutional environments. Note how these factors such as technology (core) are analytically separated from for example, institutional environments. Both however may be considered as part of the "environment." Similarly, the relative size of other organizations within the organizational population or community may also be considered a part of the organization at certain levels of analysis.

To briefly summarize and then return to the environment, Scott identifies four factors that influence organizational structure: relative bureaucratization, centralization, formalization, and differentiation. Specifically, evidence suggests that large organizations are more differentiated and formalized than smaller organizations, and these same larger firms are often less bureaucratized and centralized in their decision-making processes. This speaks contrary to Weber's idea of the inevitable and increasing rationalization and bureaucratization of organizations and human life. The suggests reason for this is that markets or "economies" develop around administrative tasks that attempt to manage the immense amount of information (avoid info. overload in highly differentiated but overly centralized systems (bounded rationality idea again). The ability to successfully accomplish this is mediated through the degree of formalization as it reduced task ambiguity and increases consistency of decision-making (283).

While technology may affect the peripheral sectors with regards to the degree of routinization, formalization, and bureaucratization often increases the differentiation / division of labor (and vice versa), the degree and techniques of buffering and bridging the organization from/to the environment also has important ramifications. All of these types of processes

involve structural change in response to or directed to the external environment. However, as the structure changes, so too does the internal environment. Scott cautions that even though such restructuring may not have obvious instrumental affects in some areas of work, the symbolic nature of organizational structure should not and can not be ignored. Sometimes the appearance of something may mean more to organizational actors than what is.

Perrow's conceptualization of the environments as nested boxes is particularly illuminating (192). Not only does this suggest the interrelated and interdependent nature of environments (notice the plurality of the term...there are many environments), but also that they may be analyzed independently of one another. Relatedly, Perrow calls for an industrial level of analysis over a firm-specific level - similar to Scott's notion of organizational populations. But Perrow does not end here. Organizational environments contain more than other competitive organizations, consumers and raw materials. Environments also contain regulatory agencies such as the state. As stated by Perrow (Pp. 190), "the power of the state to regulate and disperse entitlements is probably the single most important means of controlling the environment.

Phyllis Rippeyoung
Week 10 Summary

Since this course (and the study of organizations as a whole) began, organizational environments have played a key role in understanding the various elements that make up organizations. Marxist perspectives of the actions of the bourgeoisie could potentially be explained by Perrow's argument as being caused by environmental factors, rather than purely out of self-serving motivations, such as he described the various record producers (Perrow 1986). Rationality can be seen as bounded not only by individual preferences as March argues (1958; 1988) but as also being bounded by organizational environments. Perrow ends his article by pointing to power as the center of models of environmental theory; organizations want to know how much power they can have over their environments and how much are they controlled by the environments. One could point to environments as being the cause of gender segregation, as being the determiners of technologies, of how well people will work together and how well groups will succeed. Environments are central to understanding organizations.

While the concept of environment is essential to organizational theory, it was not explicitly discussed until the 1960s. Perrow points out that environments have been *indirectly* explored since Weber began writing of bureaucracy in the early mid-20th Century (Perrow 1986, 178). The prevalence of these unwritten discussions of environments points to their importance yet there continues to be little uniformity in defining environments. Even Aldrich and Pfeffer wait until the 14th page of their article "Environments of Organizations" to define what exactly environments are (1976). So what are environments?

Aldrich and Pfeffer condense five theorists' conceptions of environments into two definitions. The first, drawn from Dill (1955), Weick (1969), & Duncan (1972), discusses environments as a process rather than a place. They deal with environments as the flow of information perceived by members at the margins of an organization (Aldrich & Pfeffer 1976). The second definition, from Pfeffer (1972 a, b) and Aiken and Hage (1968), sees environments as available resources, ignoring issues of information processing (Aldrich & Pfeffer 1976, 92).

Perrow does not offer an explicit definition for the term environment, yet describes recent organizational theory of environments in terms of their discussion of "networks;" those interconnected webs of organizations, systems, and environments! The most explicit descriptor he appears to provide is that these systems are fluid. Thus, here, rather than seeing environments as flows of information or available resources, Perrow seems to offer a larger description of environments that encompass these information flows, resources and the multiple levels of "systems." To clarify further, systems are anything which are aggregates of subsets and also itself a subset of a greater aggregate. Perrow provides the examples of the universe and of biological cells.

Boulding (as summarized by Scott) further elaborates this idea of sets and subsets. Boulding created a typology of nine stages of development to describe the evolution of systems (evolution as in progress while retaining past characteristics, not an elimination of old stages for new ones). These nine stages begin with the most static and simple elements of the physical systems, such as the anatomy of molecule or the basic works of a clock, and are followed by the more complicated biological systems, which are capable of reproduction and have awareness of their surroundings. The nine stages end with the human and social systems that are self-aware and can act based on assessments of surroundings. Boulding added the ninth step, “Transcendental Systems,” without fully elaborating on it to provide room for future stages (Scott 1998, 83).

Thus we see a rather complicated and non-uniform conception of environments. The ability to define the term is further complicated by theorists’ beliefs of how environments work. Some theorists such as Natural Selection (a.k.a. ecological) and Contingency theorists feel that environments are closed systems that influence organizations. Natural Selectionists argue that organizations can do nothing to alter the environment and the success of organizations indicates that organizations superior ability to naturally match its environment. In a related vein, contingency theorists agree with natural selectionists with the caveat that organizations do have some ability to work to match with their environments. They do not believe, however, that organizations affect environments. Both of these theoretical camps are highly criticized however because they ignore the process that leads to success of an organization and only look post facto to understand which organizations can lead to success. In so doing, they remove the ability to try to understand the many dimensions of organizations. (Aldrich & Pfeffer 1976). Further, as Perrow points out, these theorists rely too heavily on biological terms which are insufficient to describe sociological issues; societies do not have the same types of provable truisms as one finds in biology (Perrow 1986).

An alternative view offered to this theory is the Decision-Making perspective (Aldrich & Pfeffer 1976) or the Systems Design (Scott 1998). Both of these perspectives view environments as fluid elements that can be influenced by organizations as well as instruments to affect organizations. The Decision-Making (which subsumes the resource dependence model) argues that organizations rely on outside sources as well as internal structures to be successful (much as Perrow argued in his description of environments I listed above). The resource dependence model, in particular, sees organizations as active and as responsive to the environment (Aldrich & Pfeffer 1976). The systems-design approach focuses on the ways in which information is processed as the key to understanding organizational environments and sees that organizations involve a certain amount of chaos. A further alternative to the natural selection arguments is Weick’s Model of Organizing which attempts to shift the focus from structure to process. In other words, like the first definition provided by Aldrich & Pfeffer above, they see organizations as flows of information that are used by humans to reduce uncertainty.

Organizations are complex systems that are both a part of a larger group and composed of many pieces. Much of the outcomes of organizations will be determined by environmental factors—to name just a few environmental influences on organizations: popularity of an organization's product, the state of the economy, the capability of suppliers, the functioning of technology, the productivity of workers. Because these vast webs of interdependence can determine the outcomes for organizations, one can begin to see the importance of understanding what exactly environments are. If we can begin to understand them, we can begin to control and manipulate them in order to increase organizational success. This then, however, can lead to serious moral questions, such as who will control which elements (will organizations, markets, or governments regulate certain aspects of environments?) and how much is humanly possible to control? This then leads to the seemingly unanswerable question of how to balance the interests of an organization with the interests of each of the players in the universal web of human existence. Despite these moral questions, there nonetheless remains much importance in understanding these systems as they are so clearly a crucial part of the existence of all organizations.

Dong-Joon Shin
Week10 Summary

So far, we have investigated organizations mostly focusing on within-organization processes and structures. In other words, the literature we have seen deals with the organizational processes and structures at individual level, group level, or organization level. It tends to involve the relationship between individual members and organization, individual participants and group within an organization, and groups and organization. The readings of this week extend to broader scope in studying organization, that is the relationship between organization and environment. We can think of two causal lines in this relationship, from environment to organization, and from organization to environment. Some perspectives emphasize the first causal line investigating the way environment influence organizations, while other perspectives notice the possibility that organizations affect environment which is about the second causal line.

Before we get into the relationship between organization and environment, we need to examine the concept of environment. Conceiving the organization just as everything outside the organization is not enough to study organization scientifically. Unfortunately, it seems that there is no clear-cut concept of environment. Scott (1998) shows that conception of environments varies to the level of analysis selected. When the level is organization sets, environment tends to conceptualize as the number of other organizations such as suppliers, customers, and competitors that affect its behavior and outcomes. It views the environment from the standpoint of a specific organization. If the organizational population is the level of concern, environment involves aggregates of organizations that are alike in some respect, such as the possession of a common organizational form. When interorganizational community is the level, the relations among a collection of similar and diverse organizations within a delimited geographical area are emphasized. Here, the network of relations among the organizations is key environment for each organization. We can think of organization field as higher level of analysis. In this case, local as well as distant connections are included as are both horizontal and vertical ties and linkages between similar and dissimilar organizations.

Scott distinguishes broadly between institutional and technical features of environments. The institutional elements encompass the more symbolic, cultural factors affecting organizations; the technical, the more materialist, resource-based feature. Especially, when we consider the institutional environment, the concept of environment becomes much broader. Organizations can be shaped by political and legal framework, the rules governing market behavior and general belief systems. Therefore, political sphere and social sphere in a society, such as nation state and over culture in society become crucial matters of concern. Interestingly, we can envision the relationship between the technical environment and institutional environment. According to Scott, all organizations operate in institutional environments. And many aspects of technical environments and systems rest on institutional underpinnings.

Scott (1998) presents the ideas about organizations as open systems. This open system perspective emphasizes roles of environment in organizational processes and studies. One type of open system is the “cybernetic system” which is characterized by its capacity of “self-regulation.” The self-regulation is possible mainly due to the two types of feedback. One type of feedback occurs within the organization. For example, control center monitors the outputs, comparing their quality and/or quantity with the standards set by the policy center. If discrepancies are detected, control center initiates corrective actions. Second feedback involves the possibility that reactions to the system’s outputs by those outside the system. In other words, the outputs may result in new environmental demands, in turn the demands from environment are considered in policy-making of organization. For example, customers may lead to the organization to revise its goals. Another type of open system is the “loosely coupled systems.” The parts in this system are not as highly responsive to changes in the others as those in cybernetic system. This system contains elements that are weakly connected to other elements and that are capable of fairly autonomous actions. Loose coupling in structural arrangement can be highly adaptive for the system as a whole. In other words, loose coupling of structural elements within organization may be highly adaptive for the organization, particularly when it confronts a diverse, segmented environment.

According to the open system perspective, the source of system maintenance, diversity, and variety is the environment. There is close connection between the conditions of the environment and the characteristics of the systems within it. For example, contingency theory emphasizes that design decisions depend – are contingent – on environmental conditions. Organizations whose internal features best match the demands of their environments will achieve the best adaptation. To cope with various environments, organizations create specialized subunits with differing structural features. Weick’s model of organizing involves the resolving of equivocality in an enacted environment by means of interlocked behaviors embedded in conditionally related processes. Organizational activities are carried on in three stages: enactment, selection, and retention. Enactment involves the active process by which individuals, in interaction, construct a picture of their world, their environment, their situation. The concept of enactment emphasizes the role of perceptual processes but also recognizes that organizational members not only selectively perceive but also directly influence the state of their environments through their own actions. In this model, therefore, suggests that existing environments could affect organization subjectively rather than objectively depending on one member’s perception and that organization could affect environment through the perception. Even though the perception is the important process by which environment affects organization, we can still ask that “can’t the unperceived environment influence organization?” Pfeffer and Salancik observe that although environments must be perceived in order to influence actions taken by organizational participants, they can influence organizational outcomes whether or not they have been

perceived. Actually, outcomes themselves represent the joint product of organizational performance and environmental response.

According to Scott, one of the important way that environment affects organization is that the latter needs to change its structure according to the former. For example, as the need for buffering techniques increases, new specialized staff roles and departments may develop and grow, in other word, buffering units that interface with the input and output environments of the organization can be found in the organization. We may this process as the response of organization to technical environment. Moreover, organizations are very sensitive to the nuances of the normative climate in their institutional environments: they take account of the amount of support for a conflict over particular reforms and proposed changes. This may largely involve the responses to institutional environment. Chandler identifies four phases of growth for industrial enterprise in American history. These phases includes the organizational forms range from unitary form to multidivisional or M-form structure. Chandler show how each from developed according to the changing historical configuration in environment. According to Chandler, the new multidivisional form is superior to the unitary form because it frees some officials from the heavy burden of daily operational decisions and allows them to concentrate on proper responses of organization to the environment. The emergence of the conglomerate firm represents a further extension of M-form logic. In the 1980s, conglomerate forms were not performing as well as their more unitary counterparts because of changing environment. Consequently, divesting and downsizing prevail in organizations these days.

We have seen that organizations and environment may influence each other somewhat implicitly. Scott (1998) argues that they are also interdependent in more direct ways: organizations attempt to directly influence environments, and vice versa. In terms of the environment's influence on organization, for instance, nation-state (or court) can enact laws and regulations, such as anti-trust law, laws on unionization, affirmative action/equal opportunity act, and regulation regarding to protect natural environment, to control the behaviors of organizations. Some powerful organizations also are able to influence the environment through such activity as lobbying.

When we study the relationship between organization and environment, it is worthwhile to examine how organizations adapt to environment: passively or actively. Aldrich and Pfeffer (1976) review the two perspectives – natural selection model and resource dependence model – regarding to this concern. In natural selection model which includes structural contingency theory and ecological models, organizations are influences by environment passively. Mot fitted organizations are selected by environment and survive. Therefore, various efforts of organization to adapt to environment tend to have little implication in this perspective. The resource dependence model posits that organization is active, and capable of changing, as well as responding to, the environment. In this perspective, organizations are not able to internally generate either all the resources or functions required to maintain themselves, and therefore

organizations must enter into transactions and relations with elements in the environment that can supply and required resources and services. Based on this assumption, this model focuses on the acquisition of resources and the survival of the organization, as well as the stabilization of relationships with environmental elements. Moreover, it posits an active role of the organization affecting its environment, as well as arguing that environment constraints leave the range of possible social structures consistent with survival. Aldrich and Pfeffer examine the stages of variation, selection, and retention from the natural selection model and argue that this general model of processes is not entirely incompatible with the resource dependence approach. Perrow (1986) studies the recording industry and pharmaceutical industry regarding to the issue of bias and cultural control and of the relationship between the industry and the environment. He emphasizes the notion of “network” in organizational study investigating the network of hospitals and political power. With the notion of networks, he notes that organization-environment relations in general is still fluid. Perrow’s viewpoints also compete with the natural selection perspective, specifically a revitalized population-ecology model.

Christoph Weismayer
Week 10 Summary

SCOTT Chapter 4 and 6

Organizations as Open Systems, Conceptions of Environment

The open systems approach to organizational developments opens several important perspectives and allows us to take a fresh look at organizations by stressing process over structure and a dynamic outlook over a static look at organizations. It seems however, that by looking at organizations that human agency and human discretion and implicitly also rational decision making processes do not receive their fair share of attention. However, it is at least conceivable that most processes of change entail human agency in their beginning.

Chapter 6 raises a similar kind of question for me that goes beyond how human agency can be integrated in a systems approach when a complex environment is included in the analysis – an environment which also may be influenced by rational, discretionary actions. One way of taking the systems approach further could be to look at how it is possible for complex environments and organizations to emerge from relatively stable and simple set of conditions simply because there is some initial variability built into the system and only those organizations and those individual behavioral (maybe discretionary and rational) patterns survive (or are successful) that best fit this emergent complex world.

This kind of research is actually done and it avoids the “chicken vs. egg question” that Scott asks: does the environment influence the organization or the other way around, because both possibly emerge and condition each other simultaneously. This approach is less top-down than Scott’s but similar to the open systems approach it may be a very useful tool to analyze a phenomenon, but less fit to actually predict.

Chapter 10: Sources of Structural Complexity

Several determining factors such as size of organizations for structure are analyzed and summarized and determined to have an important impact on structural outcomes. It is argued that a major adaptive strategy by organizations is to respond to outside trends by incorporating the change in their environments. My thought would be simply to investigate in how much the causal order could be reversed by saying that the reacting organizations could be seen as the creators of these trends and secondly in how much it would be possible to say that new

organizations are mostly responsible for the environment to change - forcing older organizations to adopt and change as well.

Aldrich and Pfeffer

Environments and Organization

Natural selection and resource dependence models could also be discussed from a human agency and a emergent systems angle – but the point may be mute as no one single paradigm may be capable of explaining everything and different approaches may very well complement each other. However, especially the discussion about innovations (p86) seems to suggest that the article would be more complete by including a discussion of systems changes as emergent phenomena – emergent due to the adaptive behavior of organizations capable to innovate (sometimes due to rational discretionary actions) and be the cause as well as the effect of changes in environment and organizational structure. The discussion on limits to strategic choice can be seen as the negative of the above statement namely that organization can not “swim against the stream”. In as much as organizations are the mere respondents to changes it may be accurate that these organizations may not be aware to attribute the causes of their success (they may have been at the right place at the right time).

Perrow

The Environment

This article is a nice narrative of the complexities and relations between environments and organizations and how dynamic processes of change may be initiated by complex interactions between agents, the organizations they are working for and the environment that is hence created. The discussion of strategy underscores the importance of human agency better or more intensively than the other articles. The discussion of different periods – where in one period the environment is shaped and consequently the environment shapes the organization could be the base for quite a theoretical advancement by suggesting a possible solution for the chicken/egg dilemma raised by Scott! (I also like the discussion of paradigm changes as a background for the medical example).

Stacy Wittrock

Week 10 Summary

All of the readings for this week take an open system perspective and examine the effect of environments on organizations. The open system stresses the reciprocal ties that bind and relate the organization with those elements that surround and penetrate it (100). Environments influence organizations, but organizations can also modify and select their environments. (Scott 1998)

Both the Perrow (1986) and the Aldrich and Pfeffer (1976) articles argue against the Natural Selection model of environments. The natural selection model argues that the environment selects those organizational characteristics that best fit the environment. The environment differentially selects organizations for survival on the basis of whether the organizational structure fits with the environmental characteristics. The organizations that have the appropriate social structure are selected over those that do not.

Aldrich and Pfeffer (1976) contrast the natural selection model with the resource dependency model. The resource dependency model argues for a greater attention to internal organizational political decision-making processes. It also argues for the perspective that organizations seek to manage or strategically adapt to their environments. This model argues that organizations are not able to internally generate either all the resources or functions required to maintain themselves; therefore, organizations must enter into transactions and relations with elements in the environment that can supply the required resources and services.

There are three stages in the natural selection model, variation, selection, and retention. Aldrich and Pfeffer (1976) take us through these three stages comparing the natural selection model (NSM) with the resource dependency model. In first stage, variation, natural selection model does not try to explain the source(s) of the variation that occur. However, this model argues that the greater the variations the more opportunities there are for a close fit to the environmental criteria. The resource dependency model (RDM) argues that organizations try to manage their environment and that variations are purposeful attempts to absorb interdependence and uncertainty.

The second stage, the selection process, the NSM would argue that the selection of social structures is accomplished by the differential survival of structural forms. Aldrich and Pfeffer (1976) argue that the selection process has limited applicability. The environmental selection of entire organizations seems to be limited only to small organizations or those organizations that are not linked to or subsidized by the government. This seems to be related to the dual economy theory that was discussed in the readings on ILM, where there are two types of organizations core and periphery. The core organizations are the large organizations and they also frequently receive government subsidies. So, it is the periphery organizations, which seem to be affected by the selection process, and not the core organizations. There is also a problem with the logic of

the selection process in the NSM. The NSM argues that since the organizations that are not suited for the environment will fail, the organizations that remain must be suited to the environment. This is circular reasoning and thus, unfalsifiable. In addition, the NSM assumes that the individual social unit is powerless to affect the selection process.

The RDM would argue that there might be a variety of structures that are viable in a given environment. It would further argue that organizations are not always passive recipients of environmental influences, but they have the power to reshape the environment. They point out that it is unlikely that the small firms, or periphery organizations, would have the power to be able to affect their environments. The RDM would also argue that environmental selection is not only between organizations as wholes but also between particular structures or behaviors within organizations. I'm wondering if we couldn't apply the concepts of group processes and institutional logics here. Last week, in Troyer and Silver's (1999) article, we saw that when the group's logics conflicted with those of the organization, there was a greater likelihood that the group would be unsuccessful in its attempts to acquire resources and support from the organization. This is also a fit argument. Thus, the NSM might argue that the groups whose logic match the organizations will survive and thus these logics will be reproduced in future groups. On the other hand, the RDM might argue that the group would adapt its logics to fit the organization's logics so that it can receive resources and support from the organization.

The RDM would also argue that organizational change must be examined at both levels. Selection must be examined at the population level between competing firms and selection must be examined at the organizational level between variations internal to the organization. Thus the RDM seems to be advocating a multi-level approach in examining organizations, as the STS approach also argued for a multi-level approach. Perrow (1986) also argued for a multi-level approach. He argued that only a network analysis, one that would reach up to the national system, would properly describe what happened to one of the organizations. He argued that the dynamics at the organizational level or at the set level would seriously be misinterpreted without this larger understanding.

The third stage that the NSM has is the retention stage. The NSM argues that retention occurs when certain variations are preserved, duplicated or reproduced. Retention is accomplished through organizational stability, which is manifested in the use of unchanging standard operating procedures or formal rules. This sounds like Weber's ideas of rationality. In fact included in his characteristics of a bureaucracy are fixed rules and formalization. Thus, the retention stage sounds like the routinization and standardization that Weber described as part of bureaucracies. The NSM also discusses how persons are socialized into the organizational culture. Pfeffer discussed the socialization of culture in week five as one of the mechanisms for control.

The NSM ignores questions about how decisions are made in the organizations. The RDM puts focus on how and why decisions are made in organizations. The biggest difference

between these two models occurs at the selection stage. This is where the RDM assigns more importance to managerial and organizational decision making. This model portrays organizations as active and capable of changing as well as responding to the environment. It argues that administrators manage their environment as well as their organization. The RDM calls attention to the importance of environmental contingencies and constraints, while also leaving room for the operation of strategic choice on the part of organizational members as they maneuver through know and unknown contexts. This sounds a lot like March's work on bounded rationality and decision-making.

Perrow (1986) also discussed McKelvey and Aldrich's work on paying attention to the internal competencies of organizations. In their work we see that it may be the degree of certainty or uncertainty that will affect whether or not an organization is able to manage its environment. McKelvey and Aldrich's work argued that in industries where certainty is high managers can ensure survival through strategic choices and structural changes. However, where considerable uncertainty exists, internal selection that is guided by leaders will have less of an impact than will the classical variables of variation, selection, and retention.

After reading this weeks readings I'm not sure that I have a solid conceptualization of what exactly an environment is. Aldrich and Pfeffer (1976) seem to conceptualize the environment in terms of interorganizational relations. Perrow (1986) seems to conceptualize an environment in terms of networks. Networks seem to be a subset of interorganizational relations, but not the only type of interorganizational relations. Also, this literature seems to be primarily descriptive, rather than theoretical. Keeping in mind that I have only a limited background in theory and research, I do not see a full theory here that could be tested. Would it be possible to test Perrow's work on networks? Perrow himself admits, in the hypothetical hospital example, that the connections between organizations are not always obvious. How could we empirically know what organizations are involved in a network and how those organizations affect other organizations through the network. This seems problematic to me.