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HUMAN RESOURCES AND SUSTAINED COMPETITIVE ADVANTAGE: A RESOURCE-BASED PERSPECTIVE

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Human Resources and Sustained Competitive Advantage:
A Resource-Based Perspective

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Abstract

This paper integrates the theories and findings of micro-level organizational behavior/human resource management research with the macro-level resource-based view of the firm, specifically presenting a firm's human resources as an important potential source of sustained competitive advantage. Unlike practice-oriented discussions that assume the role of human resources as a source of sustained competitive advantage, we use the theoretical concepts from the resource-based view of the firm (Wernerfelt, 1984; Barney, 1991) to discuss how human resources meet the criteria for sustained competitive advantage in that they are valuable, rare, inimitable, and nonsubstitutable. The implications for developing human resources as a source of sustained competitive advantage are discussed, particularly examining the role of HR practices and managers in this process.

Human Resources and Sustained Competitive Advantage:

A Resource-Based Perspective

The field of strategic management has undergone tremendous growth in popularity among both academics and practitioners over the past twenty years. Since the emergence of strategy as a recognized area in the field of management, industrial organization strategists have relied on a single framework (strengths, weaknesses, opportunities and threats) to structure their research (Barney, 1991). Many recent contributions to the strategy literature have emphasized the external portion of this framework, focusing on the environmental determinants of firm performance (e.g., Porter, 1980; 1985). While models such as Porter's have been well received by practitioners, these models have relatively little usefulness to them (Hamel & Prahalad, 1989), principally because these models focus primarily on the environmental determinants of firm performance and say little about determinants over which the manager has influence.

A recent entrant into the theoretical discussion of strategic management is the resource-based view of the firm (Barney 1991; Conner, 1991; Wernerfelt, 1984). This view of competitive advantage differs from the environmentally-focused strategic management paradigm (e.g., Porter, 1980; 1985) in that its emphasis is on the links between the internal resources of the firm, its strategy, and its performance. That is, the resource-based view of competitive advantage is firm-focused while models of strategic analysis such as Porter's have an industry environment focus (McWilliams & Smart, in press). However, theoretical discussion is lacking regarding which specific resources are capable of serving as sustained competitive advantages, and in what circumstances resources are likely to generate a sustained competitive advantage.

The purpose of this paper is to provide a theoretical discussion of the circumstances under which human resources can be a source of sustained competitive advantage and the role of HRM. As we will show, the discussion of human resources as a source of sustained competitive advantage has been dominated by a perspective focusing on HR practices, and this discussion, while practically useful, is theoretically deficient. In order to achieve our purposes, we first present a summary of the resource-based view of the firm. We then use this conceptualization to discuss the role of human resources in sustained competitive advantage by examining the conditions under which human resources are valuable, rare, inimitable, and non-substitutable. Finally, we discuss implications of a resource-based analysis of human resources by examining how human resources can provide sustained competitive advantage and discussing the role of HR practices in developing this advantage.

The Resource-Based View of the Firm

The resource-based view of the firm has its roots in the organizational economics literature, where theories of profit and competition associated with the writings of Ricardo (1817), Schumpter (1934), and Penrose (1959) focus on the internal resources of the firm as the major determinant of competitive success. Central to the understanding of the resourcebased view of the firm are the definitions of resources, competitive advantage, and sustained competitive advantage.

Resources within the Resource-Based View

According to Wernerfelt a resource is "anything which could be thought of as a strength or weakness of a given firm...those tangible assets which are tied semipermanently to the firm" (1984: 172). Barney expands this definition to include "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (1991: 101). According to Barney, resources fall into three categories: physical capital resources, human capital resources, and organizational capital resources. Physical capital resources consist of such things as the firm's plant and equipment, technology and geographic location. Human capital resources include such things as the experience, judgement, and intelligence of the individual managers and workers in the firm. Organizational capital resources consist of such things as the firm's structure, planning, controlling and coordinating systems, and the informal relations among groups within the firm and between the firm and other firms in its environment.

Competitive Advantage

In the resource-based view of the firm, these resources are the sources of competitive advantage. Barney describes a competitive advantage as occurring "when a firm is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors" (1991: 102). According to the resource-based view of the firm, competitive advantage can only occur in situations of firm resource heterogeneity and firm resource immobility, and these assumptions serve to differentiate the resource-based model from the traditional strategic management model. Firm resource heterogeneity refers to the fact that resources vary across firms. In contrast, in the environmentally focused strategy model, firm resources are viewed as homogeneous across firms in an industry (Rumelt, 1991). Firm resource immobility refers to the inability of competing firms to obtain resources from other firms or resource markets. In the environmentally focused strategy model, resources are considered mobile in that firms can purchase or create resources held by competing firms.

Sustained Competitive Advantage

Sustained competitive advantage is distinct from the concept of competitive advantage. Within the resource-based view, a <u>sustained</u> competitive advantage exists only when other firms are incapable of duplicating the benefits of a competitive advantage (Lippman & Rumelt, 1982). Thus, a competitive advantage is not considered sustained until all efforts by competitors to duplicate the advantage have ceased. Therefore, four criteria must be attributable to the resource in order for it to provide a sustained competitive advantage: l) the resource must add positive value to the firm, 2) the resource must be unique or rare among current and potential competitors, 3) the resource must be imperfectly imitable, and 4) the resource cannot be substituted with another resource by competing firms (Barney, 1991).

In the search for sources of sustained competitive advantage, Barney comments that "...the resource-based model of strategic management suggests that organization theory and organizational behavior may be a rich source of findings and theories concerning rare, nonimitable, and non-substitutable resources in firms," (1991: 116). The remainder of this paper will attempt to answer this call for the integration of organizational behavior theories and findings with the resource-based view of the firm, specifically presenting a firm's human resources as an important potential source of sustained competitive advantage.

Human Resources as a Firm Resource

Prior to discussing the potential of human resources for constituting a sustained competitive advantage, it is important to clarify our conception of human resources. We define **human resources** as the pool of human capital under the firm's control in a direct employment relationship. Human resource **practices,** on the other hand, are the organizational activities directed at managing the pool of human capital and ensuring that the capital is employed toward the fulfillment of organizational goals. This leads to recognizing two aspects of human resources.

First, similar to Flamholtz and Lacey (1981) and McKelvey (1983), we focus on the knowledges, skills, and abilities inherent in the individuals that make up the organization. Flamholtz and Lacey's application of human capital theory focuses directly on the skills of human beings in organizations. McKelvey, on the other hand, seeks to genotypically classify organizations based on what he refers to as their competencies. In his model, these competencies are found in the knowledges, skills, and abilities (KSA's) of organizational members. Both of these approaches recognize the importance of the individual members of organizations as the important resource, rather than the practices and/or procedures used by the firm.

Second, we go beyond these models by recognizing that the characteristics of individuals do not provide value to the firm unless they are utilized through employee behavior, broadly defined. Much of the writing in the strategic human resource management literature has focused on employee behavior, rather than on employee skills, as the mediator in the relationship between a firm's strategy and performance (e.g., Jackson, Schuler & Rivero, 1989; Schuler and Jackson, 1987; Schuler, in press). However, Wright and Snell (1991), present an open system model of the Human Resource System which explicitly notes the interrelationships between employee KSA's and employee behaviors. According to their model, KSA's are necessary, but not sufficient for employee behavior to be in line with firm goals.

This paper, consistent with Wright and Snell, distinctly recognizes that although employee behavior is the most direct way in which strategies are implemented, employees must have the competencies (KSA's) necessary to exhibit the behaviors. Although this point may seem obvious, much of the literature on strategic human resource management (e.g., Jackson et al. 1989; Schuler & Jackson, 1987; Schuler, in press) has focused on employee behavior, and has virtually ignored employee competencies. In fact, in their delineation of the "Behavioral Perspective," Schuler and Jackson stated "...the rationale developed is based on what is needed from employees apart from the specific technical knowledges, skills, and abilities (SKA's) required to perform a specific task," (1987: 208).

Given this underlying foundation for our treatment of human resources within the context of the resource-based view of the firm, the remainder of this paper will discuss how human resources can be an important source of sustained competitive advantage and one over which managers have control. We will discuss human resources within the criteria of a sustained competitive advantage, specifically describing human resources as valuable, rare, imperfectly imitable, and non-substitutable.

Sustained Competitive Advantage Criteria and Human Resources

According to the resource-based view, in order for a resource to qualify as a source of sustained competitive advantage, the resource must add value to the firm, it must be rare, it must be inimitable, and there must be no adequate substitutes for the resource (Barney, 1991).

Therefore, in this section we will show how human resources qualify as such a resource by examining how they meet these criteria.

Human Capital Resources as Valuable

First, in order for human resources to be a source of sustained competitive advantage, they must provide value to the firm. Steffy and Maurer (1988) pointed out that Firm Specific Human Capital Theory (Hashimoto, 1981; Mangan, 1983) provides an examination of the conditions under which human value creation is and is not possible. According to this theory, when both the demand for labor is homogeneous (i.e., employees are perfectly substitutable) and supply of labor is also homogeneous (all employees and potential employees are equal in their productive capacity), there is no variance in individual contribution to the firm. In this situation, it is not possible to create value through investment in human assets.

However, Steffy and Maurer (1988) noted that, in fact, both the demand for labor is heterogeneous (i.e., firms have different jobs which require different skills) and the supply of labor is heterogeneous (i.e. individuals differ in both the types and level of their skills).

Thus, there is variance in individuals' contribution value to the firm. This argues that human captial can create value for the firm. Traditionally, conceptualizing the value human capital resources provide has been quite elusive. However, recent work in the area of utility analysis for human resource programs has provided both a theoretical rationale for the ways in which human capital resources increase firm value and techniques for estimating this increase in value (Boudreau, 1983; Boudreau & Berger, 1985; Cascio & Ramos, 1986; Cronshaw & Alexander, 1986; Schmidt et al., 1979).

The utility formulas provided by Schmidt et al. (1979), and more recently elaborated by Boudreau (1983), provide a means of estimating the financial value that human resources contribute to the firm. Schmidt et al., extending the work of Cronbach and Gleser (1965) derived the following formula for measuring the value of selection programs:

$$\text{Utility} = [(N)\,(t)\,(r)\,(Z)\,(SDy)] - C$$

where N refers to the number of hires, t denotes the average tenure of the hires, r is the correlation between a selection test and job performance, Z is the average standardized score of those hired on the predictor, SDy is the standard deviation of job performance in dollar values, and C is the cost of the job selection system.

SDy connotes the dollar value of job performance to the firm and reflects the variance in individuals' contributions to the firm in dollar terms. The fact that the variance in job performance has an associated variance in dollar value to a firm was first recognized by Cronbach & Gleser (1965), but until Schmidt et al.'s (1979) analysis, researchers were unable to determine the means by which the values for this variable could be generated. Schmidt et al. solved this problem of valuing SDy by having supervisors make estimates of the cost of hiring outsiders to perform at levels comparable to the 50th, 85th, and 15th percentiles of job performance (values representing the mean, one standard deviation above the mean, and one standard deviation below the mean). Additional methods for estimating this value have subsequently been proposed (e.g., Cascio & Ramos, 1986). The method of estimating this value is not important for this analysis. What is important is that there is a consensus that higher quality human resources result in higher financial value for firms.

Boudreau and Berger's (1985) expansion of Schmidt et al.'s (1979) model more clearly demonstrates the value of human resources in dollar terms in two ways. First, it explicitly considers the sales value of human resources (workers) in dollar values. This sales value represents the value added by human resources in the firm's production process. Second, in Boudreau and Berger's model, a dollar value enables the firm to trace the value of the human resource pool as employees leave and new employees are brought in to replace them. This shifts the focus from the changes in value attributable to human resource practices to the absolute value of human resources (Steffy & Maurer, 1988). Taken together, the utility analysis literature argues strongly that human capital resources provide value to firms, as well as providing methods for estimating this value.

Human Capital Resources as Rare

Second, a resource must be rare if it is to be a source of sustained competitive advantage. One could easily argue that human resources are not rare, due to the fact that where unemployment exists, there is obviously an excess of workers. Related to the issue of the homogeneity of labor supply discussed above, to the extent that all current and potential employees have the same skill levels, human capital resources could not be considered rare. In fact, much of the scientific management literature (e.g., Taylor, 1911) is focused on designing jobs in a way that makes human skills irrelevant to performing a job. Campion (1988) noted that the scientific management literature calls for designing simplified jobs which require no (or few) specific skills. To the extent that jobs are designed in this way, skills become relatively irrelevant, thus, human resources can be characterized as a commodity rather than a rare resource.

However, to the extent that jobs require skills which allow for variance in individual contributions (i.e., when job-relevant skills are no longer a commodity), these skills should be normally distributed in the population. Thus, under these conditions, high quality human resources are rare. For example, as previously discussed, one measure of the quality of human resources is cognitive ability (Hunter & Hunter, 1984; Schmidt et al., 1979) due to its consistent empirical support as one of the best, if not the best, predictors of performance in work organizations (Hunter & Hunter, 1984). For the purpose of this analysis, cognitive ability measures are useful as a surrogate measure of the quality of the human resource pool.

Although many different characteristics could be identified and analyzed, we will focus primarily on differences in cognitive ability for the following reasons. First, cognitive ability has been consistently demonstrated to have a strong positive relationship with individual job performance (Hunter & Hunter, 1984). In fact, it is usually cognitive ability tests that have been used in demonstrating the value of selection to organizations in utility examples (Boudreau, 1983; Schmidt, Hunter, McKenzie & Muldrow, 1979). Underlying these analyses are, of course, the assumption that it is cognitive ability which is responsible for the increased economic value of the firm, and the test is the method of determining applicants' relative standing on this attribute. In addition, Snow and Snell (1992) argue that cognitive ability may be the attribute of individuals which is most important in staffing due to the fact that future challenges to organizations will require adaptability and flexibility from the workforce.

Second, there is substantial evidence that cognitive ability is a relatively stable attribute which is normally distributed in the population (Jenson, 1980). In any of the analyses which follow, one could either substitute other, or add additional, characteristics which are related to firm performance without diminishing the analysis.

Because cognitive ability is normally distributed in the population, human resources with high ability levels are, by definition, rare. Thus, it is safe to say that firms with high average levels of cognitive ability relative to their competitors possess more valuable human capital resources than those of competitors. For example, in demonstrating how the use of the programmer aptitude test could increase productivity in the national economy, Schmidt et al. noted that "Since the total talent pool is not unlimited, gains due to selection in one job are partially offset by losses in other jobs," (1979: 624). Similarly, because the total talent pool is not unlimited, firms which have a high level of human capital resources (in terms of cognitive ability), are gaining this capital at the expense of other firms.

Human Resources as Inimitable

Third, in order for a resource to be a source of a sustained competitive advantage, the resource must be inimitable. If the competitive advantage gained from having high quality human resources is easily imitated, then it is not possible for human resources to constitute a source of sustained competitive advantage. What is necessary for a resource to be imitated? First, competitors must be able to identify exactly the source of competitive advantage (i.e., the exact components of the human capital resource pool which are providing the advantage). Second, the competitor must be able to exactly duplicate both the relevant components of the human capital resource pool and the circumstances under which these resources function.

In order to discuss the imitability of high quality human resources, the concepts of unique historical conditions, causal ambiguity, and social complexity, must be addressed (Barney, 1991; Dierickx & Cool, 1989; Reed & DeFillippi, 1990). In addition, the potential mobility of human resources must be considered with regard to the imitability of human resources.

Unique history causal ambiguity. and social complexity. Unique historical conditions determine a firm's place in time and space (Barney, 1991). Within the resource-based view, the ability of a firm to acquire and exploit particular firm resources depends upon its unique history. Causal ambiguity exists when the link between a firm's resources and a competitive advantage is imperfectly understood (Reed & DeFillippi, 1990). If other firms cannot identify specifically the way in which a firm resource acts as a competitive advantage, it is virtually impossible for them to imitate the responsible resources. Finally, social complexity refers to the fact that many social phenomena are so complex as to make it impossible to systematically manage or influence them. A competitive advantage that arises from the social complexity of a firm's interactions cannot be imitated. Human resources are perhaps unique in their ability to give rise to and be influenced by unique historical conditions, causal ambiguity, and social complexity.

It is possible that human capital resources, over time, are imitable in terms of their ability levels. For example a firm may have developed a workforce which has a higher level of cognitive ability than its nearby competitors, yet a competitor firm in a different geographic location might be able to develop a workforce of equal ability. However, the way in which the human resources act as a competitive advantage may be determined by unique historical conditions, be subject to causal ambiguity, or stem from social community. To understand this, the distinction between abilities and behaviors is important. While individuals must have the abilities to exhibit required behaviors, having the necessary abilities does not ensure that the required behaviors will be exhibited.

Firms have unique histories, over the course of which particular cultures and norms develop (Sathe, 1985). Through the culture and norms, human capital resources may be melded together to create a synergistic work culture where individuals work cooperatively in line with organizational goals. On the other hand, the culture and norms may reflect a situation of self-interest and distrust, where the advantages of rich human capital are not exploited. The unique history of firms is impossible, or at least excessively costly for competitor firms to duplicate. Thus, to the extent that history is related to a competitive advantage associated with human resources, this advantage is not, for all practical purposes, imitable and would also be the source of causal ambiguity. This will occur with team production. Alchian and Demsetz defined team production as "production in which 1) several types of [human] resources are used, and 2) the product is not a sum of separable outputs of each cooperating resource," (1972: 779). Because output is not the sum of the separable outputs of each cooperating resource, it may be impossible to identify the source of the competitive advantage that arises from team production, i.e., there is causal ambiguity. Because of the rareness of human resources, it is unlikely that a competing firm can create a team with exactly the same attributes as the focal firm's team, and cannot, therefore, imitate its competitive advantage.

Social complexity may arise from transaction specific relationships and the competitive advantage they comprise may be due to transaction specific human capital. It is possible that relationships between key personnel such as sales representatives and buying agents will develop over time and become part of a network that includes a larger group of personnel such as design and marketing staff, production and distribution workers, and management, as well as final consumers. A very complex social situation may result and may constitute a competitive advantage for the firm. Although the relationship may be too complex to dissect, it is reasonable to speculate that the value of the focal relationship may be due to transactions-specific human capital (Becker, 1964), that is, the knowledge and trust that are developed over time by the focal personnel and which have value only in the focal relationship. Human resources and social complexity are intrinsically linked because social complexity, by definition, must result from human interactions.

Thus, in theory, competitive advantages stemming from culture or norms, team production, or transaction specific human capital might be imitable if one were able to identify and replicate the exact historical occurrences and the interactions, programs, and personalities within the firm. However, this is highly unlikely due to the many contingencies that exist in different organizational situations. This is similar to the distinction between field studies and laboratory experiments. In field studies, a researcher is never able to identify and control all of the possible contingencies in order to understand the exact causal connections among variables. In contrast, in a laboratory experiment, the researcher is able to control virtually all environmental contingencies, thus making the causal effect less ambiguous. The reality is that firms are not laboratories. Hence, human resource advantages most frequently are characterized by unique historical conditions, causal ambiguity, and social complexity, and thus, are almost always inimitable.

Resource immobility and human resources. One potential problem with the idea that human resources are inimitable is the notion that human resources are highly mobile. If human resources are highly mobile, a competing firm does not have to imitate the human resources of the focal firm, it can simply hire them away. As we will show, however, these resources are far from being perfectly or even highly mobile.

First, human resources are not perfectly mobile because there are substantial transaction costs involved with moving from one employment situation to another (Abelson & Baysinger, 1984). The costs of determining all relevant alternative job situations may be quite high, the worker must weigh the probability that a future employment situation will be significantly better than the present employment situation, and the worker must incur nonpecuniary (and possibly pecuniary) costs of relocation.

Second, with causal ambiguity or social complexity, it may not be apparent which personnel are responsible for the competitive advantage. Hiring away teams is a possibility, but even a team's effectiveness may depend on unique historical circumstances or relationships with other teams (Alchian & Demsetz, 1972). In the limit, hiring the appropriate team might mean hiring the entire work force which constitutes acquiring the firm. Even then, the effectiveness of the human capital resources may be tightly coupled to the physical or organizational capital

resources. Thus, unique historical conditions, causal ambiguity, and social complexity strongly influence the inimitability of human resources. In addition, these same conditions result in sustained competitive advantages stemming from human resources being immobile.
In addition, it is thrown the combination of social complexity, causal ambiguity, and unique historical circumstances with imperfect mobility that the value created by human resources is accrued by the firm. In the absence of these conditions, individuals would be able to capture the additional rents associated with their higher human capital. However, because their inputs are usually associated with team production, individuals cannot specifically measure their contribution, and thus, are not able to capture the rents (Jones, 1984). Thus, these rents accrue to the firm, increasing firm value.

Human Capital Resources as Non-Substitutable

Finally, a resource must not have substitutes if it is to be the source of a sustained competitive advantage. This raises the question of whether or not other firm resources, such as technology, have the potential for offsetting any competitive advantages attributable to human resources. To the extent that other resources are able to substitute for advantages associated with the human capital resource of the focal firm, then human resources do not have the potential to act as a sustained competitive advantage.

In order to address this issue, it is important to note that human resources are one of the few firm resources which have the potential to a) not become obsolete, and b) be transferable across a variety of technologies, products, and markets. Although the rapid pace of technological change has resulted in new technologies which make former technical skills obsolete, (i.e., having a short half-life), many human capital resources are quite generalizable. Returning to our example of cognitive ability as a relevant resource, if a firm has obtained individuals with high levels of cognitive ability, then constant training in state of the art technological knowledge ensures that the resource does not become obsolete. In addition, general human capital resources such as cognitive ability are transferable across a wide variety of technologies, products, and markets. In fact, Schmidt, Hunter and Pearlman (1981) found that the validity of cognitive ability was consistent even across extremely dissimilar jobs.

Therefore, we argue that it might be possible to substitute other resources in the short term, but it is highly unlikely that such substitution could result in sustained competitive advantage. This stems from the fact that to the extent that the resource offsetting the advantage of human resources is not, in and of itself, rare, inimitable, or non-substitutable, then it will be imitated and human resources will once again constitute a competitive advantage. For example, consider a firm, Firm A, which has the highest ability individuals who are highly committed to the organization, thus, constituting a source of competitive advantage. What happens if a competitor, Firm B, develops a new technology which provides productivity increases greater than the productivity differences stemming from Firm A's highly skilled, highly committed workers? If the technology is imitable (which is likely because the firm could simply purchase the technology in the marketplace), then Firm A could purchase the new technology, and its human resources would once again constitute a competitive advantage. Thus, the only resources that can substitute for human resources are those resources that are themselves valuable, rare, inimitable, and non-substitutable.

From this discussion it is clear that human resources meet the criteria for being a source of a sustainable competitive advantage. Human resources add value to the firm, are rare, cannot be imitated, and are not substitutable. We now discuss why it is human resources as a pool of human capital rather than top managers that provide a source of **sustained** competitive advantage.

Top Management Versus Human Resources

Earlier we defined human resources as the total pool of human capital. This definition distinguishes between treating human resources as an individual (or an elite group of individuals) or the total workforce. Clearly, most of the writing on human resources as a source of sustained competitive advantage has focused on top managers, or top manager teams. For example, Barney

(1991) emphasizes that human capital resources refer to the characteristics of **individual** managers and workers in the firm, and specifically noted that the managerial team might constitute a source of sustained competitive advantage. Similarly, Castanias and Helfat (1991) proposed that top management may constitute a source of sustained competitive advantage. Consistent with the literature on strategic management, these discussions evidence a bias toward the strategic decision-making process that is viewed as taking place among top managers. While it is true that an individual or an elite group of individuals may create temporary competitive advantage, we argue that a more likely source of **sustained** competitive advantage is the larger pool of human capital that constitutes the entire organization.

For a resource to be a source of sustained competitive advantage, it must be inimitable and this attribute is not likely to be found among top managers. Top management is not likely to be inimitable because its output is not characterized by causal ambiguity, social complexity, or unique historical conditions. In fact, rather than being causally ambiguous, the contribution of top management is likely to be highly visible. This visibility makes top managers highly imitable. because it makes them highly mobile. That is competitor firms can imitate a competitive advantage by hiring away top management. High visibility also increases top managers' mobility through allowing them to demand that the firm incur any transaction costs associated with changing firms (i.e., moving expenses, golden parachutes, etc.). In addition to its effect on mobility, high visibility allows top managers to demand the market price for their inputs, increasing their ability to claim the rents that would otherwise accrue to the firm. Because top management is likely to be highly mobile and is able to capture the rents that it generates, it is not as likely to be a source of sustained competitive advantage for the firm. However top management may create the conditions under which the remainder of the human capital pool becomes a source of sustained competitive advantage.

The entire human resource capital pool (i.e., all employees), on the other hand, are often overlooked as a source of sustained competitive advantage because their contribution is less visible. However, these employees may play a greater role in generating competitive advantage because they are directly involved in the production of the product or service. In addition, because of the lower visibility, they are less mobile, and less able to claim the rents from their inputs. Also, the pool of employees may have advantages that are characterized by social complexity (e.g., good working relationships, trust, etc.) that are not imitable. For these reasons, we believe that top managers are clearly valuable and can provide a short term competitive advantage, but that sustained competitive advantage is more likely to be found in the entire human resource pool. In the following section we will examine the role of human resources in sustained competitive advantage and develop some research propositions regarding this role.

Human Resources and Sustained Competitive Advantage The Role of Human Resources in Sustained Competitive Advantage

We have demonstrated that when the supply of and demand for labor is heterogeneous, human capital characteristics are normally distributed, firms have unique histories, work processes are characterized by causal ambiguity and social complexity, and human capital is transferable across technologies, human resources have the potential to constitute a source of sustained competitive advantage for a firm. However, the way in which human resources provide a relative competitive advantage that leads to higher firm performance has been ignored. We argue that the mechanisms differ somewhat depending upon the nature of the environment.

First, in a static environment, higher levels of human capital should enable a firm to have productivity advantages relative to its competitors. For example, cognitive ability allows for individuals in any given job to devise the most efficient strategy for performing the required tasks, thus, increasing productivity. Thus, given the strong linear relationship between cognitive ability and job performance (Hunter & Hunter, 1984), a firm with greater human capital resources in terms of cognitive ability should possess a productivity advantage relative to other firms. Firms with higher levels of cognitive ability, ceteris paribus, should demonstrate higher productivity levels.

Proposition 1: In static environments, firms with high levels of human capital resources should possess relative productivity advantages over competitors through the development of more efficient means of accomplishing task requirements.

Second, under more dynamic and complex environments, the human capital pool can affect firm effectiveness through increasing its capacity to adapt to particular environmental requirements. In our analysis of this phenomena, we take the logical incrementalism perspective offered by Quinn (1980).

According to Quinn (1980), firm strategies develop through a process of an evolutionary series of decisions aimed at achieving vague objectives that move the firm incrementally in a desired direction. The top management team is seen as setting the overall strategic direction, but the specific strategies and tactics arise through the responses of subunits to their environments. Firms are faced with increasingly dynamic and competitive environments which necessitate close monitoring and quick strategic responses to environmental changes (Snow & Snell, 1992). Kerr and Jackofsky (1989) contended that three essential components of strategy implementation within the context of the logicalincremental view of strategic management are flexibility, communication, and cohesion. We would expand upon this contention, by arguing that flexibility, communication, and cohesiveness provide a competitive advantage through enabling a firm (1) to sense critical environmental variables, (2) develop strategies to react to those variables, and (3) to implement these strategies quickly and efficiently.

First, human capital can improve the firm's ability to sense changes in critical environmental variables that require changes in a firm's activities. Because the environments within which firms exist are becoming increasingly complex and dynamic, the need for the development of alternative mechanisms for monitoring the environment becomes more important. High levels of human capital resources increase the firm's monitoring capability by decentralizing the monitoring to meet the complexity of the environment. No longer is the monitoring only carried out by a centralized department (e.g., planning, or marketing), but additional information can be gained by employees who are closer to the actual stakeholder groups.

Second, human capital certainly creates an ability to devise more effective strategies in response to environmental changes. As Quinn (1980) noted, although top management has the responsibility for setting the strategic direction of the firm, the many subunits engage in developing the strategies and tactics necessary to function effectively in their particular environments. Finally, once responsive strategies have been devised, they need to be implemented quickly and efficiently. As Snow and Snell (1992) pointed out, this challenge requires flexibility and adaptability from the workforce. Responses must be evidenced throughout the entire workforce, and may require quickly learning and applying new skills, implementing new technologies, and/or reorganizing the way work gets done. Returning to our discussion of the transferability of various human capital resources such as cognitive ability, it is clear that high levels of human capital can provide a high degree of flexibility for organizations to adapt to new technologies and/or environments. In fact, recent research has demonstrated that the effect of cognitive ability on performance occurs primarily through the acquisition of job knowledge (Schmidt & Hunter, 1992). Individuals high in cognitive ability are more able to learn job relevant knowledge (e.g., procedures, etc.) than those low in cognitive ability. An environment characterized by constantly changing technologies and products requires that individuals adapt to new technologies through constantly acquiring knowledge. Thus, firms which possess a high quality human resource capital pool (i.e., individuals having high levels of cognitive ability) should possess an advantage relative to their competitors with less capable workforces.

Proposition 2: In dynamic environments, firms with high levels of human capital resources possess greater capability to respond to environmental changes through sensing the need for change, developing strategies to meet the change, and quickly and efficiently implementing these strategies.

Human Resource Practices and Sustained Competitive Advantage

The idea that human resources can serve as a competitive advantage is not new (c.f., Schuler & MacMillan, 1984; Ulrich, 1991). However, existing research has taken a practice-oriented perspective, emphasizing the value of HR practices rather than the quality of the HR pool. Schuler and MacMillan (1984) presented a target/thrust matrix to discuss the potential for capitalizing on superior human resource management as a means of gaining and maintaining a competitive advantage. In this model, targets of HRM practices represent both upstream and downstream activities, including the firm itself, its customers, its distributors and servicers, and its suppliers. The potential thrusts are (1) cost/efficiency or (2) product differentiation. Ulrich (1991) also discussed how human resource practices can be used by firms to develop strategies that will lead to a sustained competitive advantage, stating that there must be a focus on the relationship between human resources, strategies, and competitive advantage. Ulrich partially relied on the resource-based theoretical perspective in describing human resources as a competitive advantage by expanding Porter's (1985) model of competitive advantage to include organizational culture, distinctive competence and strategic unity as mediators in the strategy-competitive advantage link.

Both Schuler and MacMillan (1984) and Ulrich (1991) provide practice-oriented perspectives, demonstrating the ways in which they believe that HRM can serve as a sustained competitive advantage. This perspective focuses on human resource practices that enable a firm to have a competitive advantage relative to other firms. These authors assume that human resources can create value for the firm and that HR practices can be the source of sustained competitive advantage. The focus is on guiding practitioners in the development and structure of HR practices to achieve competitive advantage.

While these practice-oriented approaches provide valuable recommendations for how human resource practices can be used for competitive advantage, they are somewhat deficient from a theoretical perspective, and a theoretical foundation is necessary for moving our knowledge forward (Wright & McMahan, 1992). Practice-oriented approaches focus on the HR practices as the source of sustained competitive advantage as opposed to the human resources themselves being the source. As previously discussed, a resource must be valuable, rare, inimitable, and nonsubstitutable in order to be a source of sustained competitive advantage. While recognizing the importance of HR practices, we will show that they are easily imitated and/or substituted, thus, cannot by themselves be a source of sustained competitive advantage. Therefore, the **source** of sustained competitive advantage lies in the human resources themselves, not the practices used to attract, utilize, and retain.

In making a distinction between human resources as a pool of human capital and human resource practices, we differ somewhat from both Schuler and MacMillan (1984) and Ulrich (1991) in our focus. These authors focused primarily on HR **practices** as constituting a competitive advantage. This is completely consistent with the orientation towards giving managers practical tools for increasing organizational effectiveness. However, having discussed the necessary characteristics of a resource for it to serve as a source of sustained competitive advantage, we can now show why a focus on human resource practices as such a source is misleading.

Remember that in order for a resource to serve as a source of sustained competitive advantage, it must be valuable, rare, inimitable, and non-substitutable. If one were to focus on superior human resource practices as the source of sustained competitive advantage, then these practices must be evaluated against these four characteristics. Clearly, HR practices can be valuable (e.g., the value from HR programs as demonstrated in utility analysis models). However, it is virtually impossible for HR practices to be rare, inimitable, and non-substitutable. For example, a variety of ability tests exist for assessing one's intellectual human capital, which makes ability testing neither rare, inimitable, nor non-substitutable. Thus, HR practices, in and of themselves, have little potential for being a source of sustained competitive advantage.

This is not to ignore the importance of HR practices in developing human resources as a source of sustained competitive advantage. Rather, we argue that although HR practices are not themselves sources of sustained competitive advantage, they play an important role in developing sustained competitive advantage through the development of the human capital pool, and through moderating the relationship between this pool and sustained competitive advantage by affecting HR behavior as depicted in Figure 1.

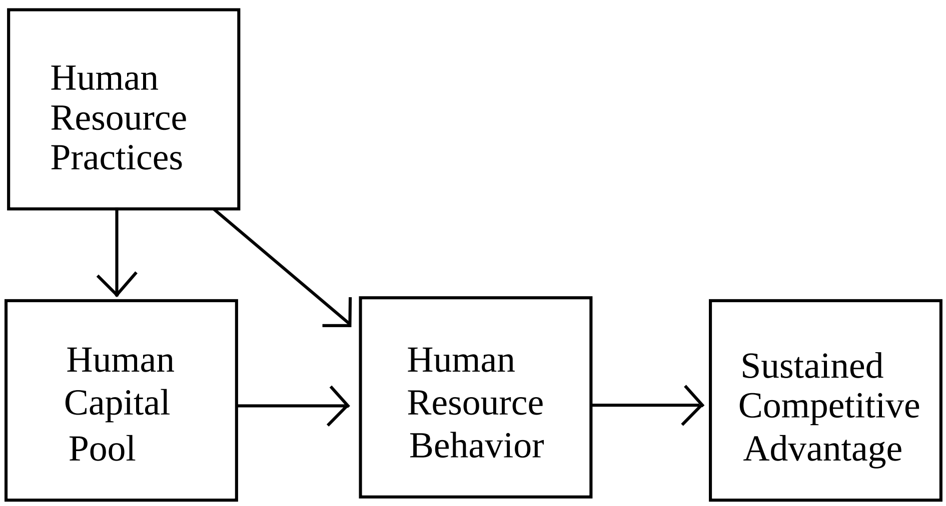

Figure 1

As previously discussed, it is through the human resource capital pool and employee behavior that human resources can constitute a sustained competitive advantage. Thus, it is possible that a human resource capital pool may exist within the firm and be discovered and exploited by managers. However, this human capital pool can also be developed and behavior brought in line with firm goals through human resource practices which are under the control of managers (Schuler & Jackson, 1987; Schuler & MacMillan, 1984; Wright & Snell, 1991). This is, in essence, the focus of "strategic" human resource management.

First, these practices are essentially the levers by which a pool of human capital can be developed. Managers can use HR practices such as the development of selection, appraisal, training, and compensation systems to attract, identify, and retain high quality employees. For example, the firm must be able to identify high ability individuals and distinguish them from low ability individuals. The goal of virtually all selection programs is to ensure that the organization is hiring only the highest ability individuals. Second, the firm must be able to attract (Murphy, 1986) and retain (Jones & Wright, 1992) those applicants deemed to be of the highest ability. This is the aim of additional HR programs such as extensive recruitment systems and attractive compensation packages. Third, the firm must invest in the continuing skill development of its human capital pool. This requires administering a variety of training aimed at increasing and maintaining each individual's job related skills, and providing development opportunities for individuals which broaden their skill base.

Thus, a firm which develops a valid selection system and has attractive HR programs such as higher than normal compensation packages and numerous development opportunities, can attract, select, and maintain the highest quality human resource capital pool. While HR programs are imitable, once a differentially high quality human resource capital pool has been developed, the firm has a first mover advantage over competing firms (Williamson, 1975), because high quality human resources are rare, inimitable, and nonsubstitutable.

Proposition 3: HR practices aid in developing human resources as a source of sustained competitive advantage through creating and developing a high quality human capital pool.

Proposition 4: A firm which is the first in its industry to develop the effective mix of reward systems and selection systems will have a first mover advantage to the extent that human resources are not perfectly mobile.

Second, having obtained high quality human resource capital for the firm, the next aim of human resource practices is to encourage individuals to behave in a way that supports the organization. As was previously discussed, the human resource capital pool is a necessary, but not sufficient condition for human resources to act as a source of sustained competitive advantage. The potential of the human resource capital is realized only to the extent that the possessors of the human capital (i.e., individual employees) choose to allow the firm to benefit from the capital through their behavior. Reward systems, communication systems, training programs, and socialization systems can be developed which encourage employees to act in the interest of the firm (Schuler, 1992; Schuler & MacMillan, 1984). For example, the Scanlon Plan is a process through which the firm changes its culture to one of trust between managers, employees, owners and customers (Frost, Wakely, & Ruh, 1974). The plan utilizes a suggestion system where employees can propose ideas for better or more efficient ways of performing tasks and a bonus formula which allows all parties to share the benefits of increased productivity. It is interesting to note that firms which have had success with the Scanlon Plan inevitably consider their **people** to be the source of their competitive advantage (Depree, 1987). Thus, HR practices moderate the relationship between the human capital pool and firm effectiveness, such that the pool is only effective when combined with the right practices that capitalize on the advantage through eliciting employee behavior. In other words, having the correct mix of HR practices is a necessary condition for the maximal effectiveness of the HR capital pool.

Proposition 5: HR practices moderate the relationship between the human capital pool and sustained competitive advantage such that the capital pool results in sustained competitive advantage only when matched with appropriate HR practices that elicit productive employee behavior.

This moderating role may explain why, in spite of the fact that most firms stress the importance of human resources, very few firms have been successful at developing their human resources as a source of competitive advantage. Sustained competitive advantage is only achieved by the interaction between the human capital pool and the HR practices. It also may explain why practices such as selection, training, and knowledge-based pay have been successful in some firms, yet not in others. Firms can imitate practices that appear to make other firms successful, but it is only through the use of these human resource practices in a unique context that human resources can be developed as a source of sustained competitive advantage. For example, the "Behavioral Perspective" (Jackson et al., 1989) proposed by Schuler and his colleagues argues that HR practices provide competitive advantage through eliciting from employees appropriate role behaviors. However, many firms copy the HR practices of successful firms without the same competitive advantage. The source of the differing success of the same HR practices likely results from the different human capital pools existing within the various firms. Some role behaviors may require superior human capital, without which no HR practices can elicit the necessary behaviors. Again, this illustrates the fact that the relationship between HR practices and competitive advantage is contingent upon the human capital pool.

The Role of Managers in Developing Human Resources as a Source of Sustained Competitive Advantage

One of the problems inherent in defining sources of sustained competitive advantage as requiring value, rareness, inimitability, and non-substitutability is that it limits, to a great extent, the role of the manager in creating competitive advantage. Although this model attributes to managers greater influence over firm performance than population ecologists might (Hannan & Freeman, 1977), Barney and Tyler (1991) state that the resource-based view of the firm assumes that managers are limited in their ability to manipulate all the characteristics of their firms.

This presents a problem for managers seeking to create a sustained competitive advantage within their firms. When resources are traded freely on markets, it is impossible for a firm to purchase resources that will be a source of sustained competitive advantage. Such resources will be priced by the market at the value to the firm, that is, if a resource can generate excess returns, any firm wishing to purchase it will have to pay the value of those excess returns in a competitive market (Klein, Crawford, & Alchian, 1978). Thus, the resource-based view makes it clear that firms cannot expect to purchase sustained competitive advantages. Such advantages must be found in the rare, imperfectly imitable, and nonsubstitutable resources already controlled by a firm (Dierickx & Cool, 1989). The role of managers, then, is to recognize, develop, and exploit the resources within the firm.

However, as we have discussed, managers can play a role in developing human resources as a source of sustained competitive advantage through the application of HR systems that develop the human capital pool of employees and elicit appropriate behavior from employees. In spite of the fact that the relationship between HR practices and competitive advantage is complex, a resource-based view of the firm points out the potential for managers to play an active role in developing such an advantage through focusing on human resources. In fact, very few other firm resources are under as direct a control of managers as human resources.

Conclusions and Suggestions for Future Research

The purpose of this analysis was to examine human resources as a source of sustained competitive advantage from the standpoint of the firm. We demonstrated, using the theoretical concepts from the resource-based view of the firm (Wernerfelt, 1984; Barney, 1991; Conner, 1991), that human resources can be a source of sustained competitive advantage because they meet the criteria of being valuable, rare, inimitable, and nonsubstitutable. One can conclude that human resources always are a **potential** source of sustained competitive advantage. However, because human resources are characterized by causal ambiguity, social complexity, and unique historical conditions, not all firms can successfully develop human resources as a sustained competitive advantage through imitating the HR practices of firms that have successfully developed human resources.

The resource-based view of the firm suggests the need to integrate human resources into the formulation stage of a firm's strategy. The resource-based approach provides a framework for examining the potential for a given pool of human capital resources to carry out a given strategy. Thus, the resource-based view may demonstrate the fact that strategies are not universally implementable, but are contingent on having the human resource base necessary to implement them (Grant, 1991). If the human resource base is not present, then either the strategic alternative can be eliminated or those in charge of strategic planning can determine whether the necessary human capital resources can be obtained through human resource practices. For example, Snell and Dean (1992) found that many new manufacturing technologies such as Advanced Manufacturing Techniques, Total Quality, and Just-in-Time inventories are accompanied by investments in human capital.

From the standpoint of researchers interested in strategic human resource management (SHRM), the resource-based view of the firm provides a framework for examining the role of human resources in competitive success (Wright & McMahan, 1992). Similar to utility analyses of employee value (e.g., Boudreau & Berger, 1985) and McKelvey's (1983) view that a firm's distinctive competence is made up of the skills of the members of the organization, the resource-based view provides a framework for viewing human resources as a pool of capital. Finally, the view of human resources as a pool of capital within the resource-based view implies a change in the treatment of costs incurred in human resource interventions.

Traditionally, costs associated with the development of selection systems and training programs have been viewed as an operating expense. However, if, in fact, human resources are a resource through which managers can develop a sustained competitive advantage, then these costs might be better viewed as an investment in a capital asset (Cronshaw & Alexander, 1991). Investments in any other capital resource are often considered by managers as means of generating a potential sustained competitive advantage (Dierickx & Cool, 1989). Our discussion points out the fact that investments in human capital have the same (if not greater) potential, and thus, should be treated as capital investments. Flamholtz (1985) argued that, in effect, firms purchase human assets which generate revenue flows over future accounting periods. Thus, consistent with the resource-based view of human resources, Cronshaw and Alexander (1986) stated that it is more realistic to consider outlays for the development of human capital resources as capital investments.

Developing Sustained Competitive Advantage through Human Resources

Proposition X: Firms without HR practices which define and elicit behavior in line with firm goals will be unable to realize the benefits of their human capital resource advantages over competitors.

Proposition X: Firms utilizing HR practices which define and elicit behavior in line with firm goals (performance appraisal systems, reward systems, communication systems etc.) are able to obtain the advantages of the human capital pool to a greater extent than their competitors.

We, on the other hand, have attempted to explore the role of human resources in sustained competitive advantage from a broader theoretical perspective. Thus, we focused on the **pool of human capital** as the resource which makes up the competitive advantage, distinct from the HR practices which are the tools used by managers to develop those resources into a competitive advantage.

And while these practices are imitable, the exact context in which they are administered is subject to causal ambiguity, social complexity and unique historical conditions, thus, limiting the potential for these practices to result in a high quality human resource capital pool in each context.

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