

Human Resource Management Model Design with Socio – Eco-Technology Approach

Alborz Gheitani¹, Golamreza Memarzade Tehran²

¹Ph.D Student of Public Management Department, Qazvin Branch, Islamic Azad University, Qazvin, Iran

²Associate of Public Management Department, Science and Research Branch, Islamic Azad University, Tehran, Iran

ABSTRACT

In this paper, we explain a model for human resource management in public sector. For this reason, we use joint optimization method to combines the social, ecological, and technical aspects of human resource system in a way that maximizes employee performance. Human resource (HR) systems mostly pay attention to the task criteria in design, which considers technical issues but less attention to human, organizational and contextual issues. In Iran, the emphasis of HR systems, particularly in the public sector, is on technical aspects rather than human and ecological issues of human resource management matters. Based on socio-technical (ST) theory, human side of work has the same importance as the technical side. Furthermore, comparative theories have shown that Western techniques and methods cannot guarantee the success in developing countries. According to these two theories and with inspiration from Heller socio-ecotechnology (SET) theory, we have promoted the ST theory to system level and simultaneously developed this theory to SET for HRM. Then we used this new theory to design a new model. Finally, we proposed a HRM model based on the best combination of human capital (as the technical side of theory), social capital (as the social side of theory), and ecological capital (as the eco side of theory)

Keywords: Socio-EcoTechnology, Human Capital, Social Capital, Eco Capital, HRM

1. INTRODUCTION

Change management process becomes more complex and gets out of control every day. There are two issues affecting any change program, the nature of change and the environmental factors. These two are different but associated [22].

Human resource systems (HRS) have generally focused on functional criteria in design. In functional view, the emphasis is more on technical issues and less attention to contextual and human issues. Task behaviors refer to technical function either directly or indirectly. These behaviors usually vary between different jobs in the same organization. There are some behaviors that must be done for a reward. Variations in task behavior refer to human characteristics such as knowledge, skills and abilities that vary with task proficiency. In other side, contextual behaviors refer to the organizational, social and psychological environment in which the technical function must operate. These behaviors which are the same in many jobs are not organizational obligations, and they only refer to contextual variations that are being done freely thus [3].

This concurs with Borman and Motowidlo's [10] assertion that, in managerial performance evaluations, the antecedents of contextual performance behaviors are more likely to involve personality factors. That is, if aspects of contextual performance behaviors are included as criteria for the performance evaluation, then personality predictors are more probable to be successful for selection than if they are not included.

Systems often meet their 'technical requirements,' but are considered to be a 'failure' because they do not deliver the expected support for the real work in the organization. The source of the problem is that a techno-centric approach to system design does not properly consider the complex relationships between the organization, the people enacting business processes and the system that supports these processes [6].

The ST model was formulated as the result of the experience of the British coal industry when an extraction process was changed over from a simple so-called 'single place working' to a new and complex Longwall method.

In spite of the enormous and well recognized benefits of modern technology, there has often been some anxiety about negative effects attributed to technology, like pollution of the air and rivers. This has led economists to develop the concept of externality. Negative externality is generated by an economic activity (for example, as the result of a technology), whose costs do not fall on the decision-making agent (the designer of the technology, or the organization using it), but on somebody else, for instance, the general public. In theory, it is possible to estimate the transfer of cost and benefit the causal agent. In practice, this rarely happens. These considerations and the

Corresponding Author: Alborz Gheitani, Public Management Department, Qazvin Branch, Islamic Azad University, Qazvin, Iran, Email: alborz_gheitani@yahoo.com Tel: 00989123683521

experience of a research project on reducing energy consumption and carbon dioxide (CO₂) emission, provided the stimulus for extending the ST model to address ecological concerns [21].

HRS in Iran (specially, in public sector) has more focused on the technical dimension rather than human and ecological issues. In another word, most systems used in our country are imitated from other countries (mostly western countries' and in some cases Japanese model), and few attempts have been made in localization systems with social, human and ... issues. The results of these approaches are seen in low job satisfaction [19], performance, and productivity [25].

According to the above explanation, we are facing with three subsystems (technical, social, and ecological) in the HRS model which are correlated, but independent. Subsystems are not always directed in same direction and cannot be maximized simultaneously, because the maximization of each subsystem entails ignoring the others. Then according to the Heller [21], we need to find joint optimization of these subsystems to achieve the desired result.

Since the main purpose of HRM system is improving the human and organization performance, the present study seeks joint optimization of technical, social and ecological subsystems to maximize employees' performance in public sector. However principal the main research question is what combination of technical, social, and ecological subsystems may lead to an optimal performance. The conceptual model is shown in figure1.

2. LITERATURE REVIEW

The contribution of this study are twofold: introducing a new concept of ecological capital to the organizational literature; and developing new indexes for measuring the socio- eco- technology subsystems of social capital, eco capital and human capital ones.

An organization needs an efficient internal arrangement to survive and operate properly. Under such an arrangement, the organization can work in business environment properly [17]. Based on socio – technical principles, we have a proper integration of social and technical systems result in efficient mixture of external environment with technologies, systems, structures, and relative internal process [38]. For instance, a comprehensive model of organization design is looking for a series of HRM functions that select, develop, protect, and motivate work force and maximizing the organizational performance at the same time [5]. In traditional approach to socio – technical theory, the emphasis was put on job design. The main focus of this approach was that people should be involved in their job design. But in this new approach, the important issue is the relationship between human, technology, and organizational outcomes [35]. This view of socio – technical theory is wider than traditional view [20].

For some historical reason, the use of the ST model has been almost exclusively concentrated at the micro – level of organization. Trist and Emerly stressed conceptualizing the model at higher levels. In this case Trist [46] said:

“In the ST field as a whole, the knowledge base is unevenly distributed. Most is known about primary work systems and a good deal about modeling new plants. Far less is known about transforming existing work establishments. Even less, however, is known about ST processes at the macro social level. The payoff from directing research attention to this level would be considerable (p. 50).”

In recent years modern governments have experienced a great change in their functions and responsibilities. In the change context, the role of public administration has become more crucial in fulfilling the goals of the government. Consequently, administrative theories and models have become much important to understand the public administration. The ecological approach to the study of administration has been suggested when Western organization theories have been found inadequate for the study of the problems of administration in the Third-World Countries [40].

Administration does not function in isolation from its environment. Administration influences the environment and is influenced by the environment. The understanding of the dynamics of this process of interaction between these two is necessary for the understanding of the administration. The approach adopted is known as the ecological approach. Ecology is a term borrowed from Biology. It is also concerned with the science dealing with the inter-relationship of organisms and their environment. It is a study of the interplay of living organisms and their physical and social environment. It is concerned with the question of how a balance involving organisms and environment is achieved for survival. Based on ecology theory the growth or development of each society is conditioned by its own history, economic structure, values, political system, etc. The characteristics of its social system and its physical environment shape the ideas and institutions.

According to Gaus [18], the effort to relate government functions to the environment is necessary. In Guas's view, an ecological approach to public administration builds, quite literally, from the ground up, i.e from the elements of a place (soils, climate, location, etc.) to the people who live there- to those with their numbers and ages

and knowledge, and the ways of physical and social technology by which from the place and in relationships with one another, they get their living.

When social scientists use an open system framework and consider the relationship between organizations (O) and the environment (E), they assumed this relationship to be one-way connection from $E \rightarrow O$. Conceptualizing a reverse relationship $O \rightarrow E$ is long overdue. For extension of the ST to a Troika model, we should take account of the impact of intra-organizationally designed technology on the world outside organizations [21].

Given the three dimensions (sub systems) described in this paper technical assets in relation with human resource are considered as human capital and social assets are considered as social capital, as well as ecological assets are considered as eco capital, which will be described in the next chapter.

2.1 Human capital

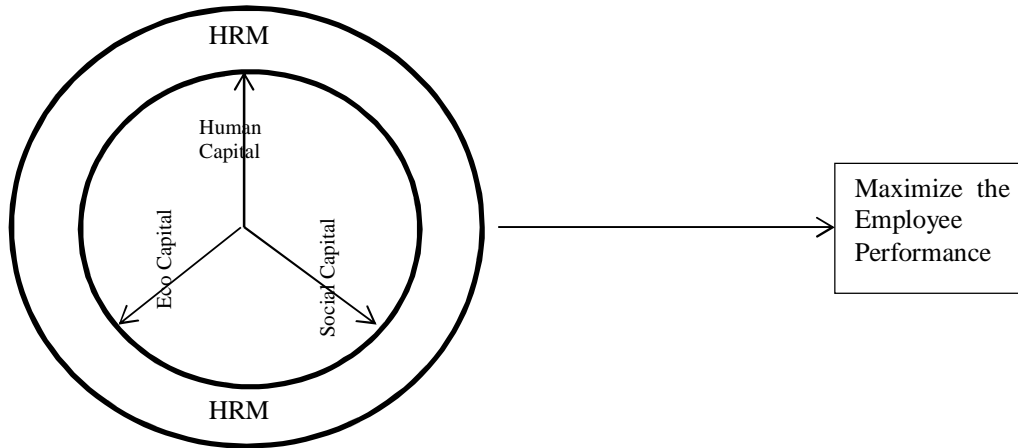


Figure1. Conceptual Model

Human capital theory maintains that knowledge provides individuals with increases in their cognitive abilities, leading to more productive and efficient potential activity [41, 8, 33, 16].

Human capital theory [8] holds that some labor can achieve higher monetary market participation returns than other because of enhanced capability from higher resource investment in that labor.

Human capital is not only the result of formal education, but includes experience and practical learning that take place on the job, as well as nonformal education, such as specific training courses that are not a part of traditional formal educational structures. Thus, broad labor market experience, as well as specific vocationally oriented experience, is theoretically predicted to increase human capital [8].

Human capital is defined as “the collective knowledge, skills, abilities and characteristics (that is, all the capabilities combined) of an organization’s employees and managers that create a capacity (potential that can be realized) for competitive advantage” [1].

However, some literature and scholars have begun to verify that attitude is a key factor that influences competence. The literature also has suggested that competence is related to the essential individual work-related factors, such as skills, knowledge, attitudes, beliefs, motives, and traits that enable successful performance of a job [9, 12, 43, 42].

2.2. Social capital

The social capital concept focuses on networks, the relationships within and between them, social norms, shared and mutual understandings, trustworthiness, the acquisition of resources through social ties, the creation of synergies and partnerships and the facilitation of coordinated effort [26].

Nahapiet and Ghoshal [36], who combine the organization's external and internal networks by arguing that social capital is the sum of its actual and potential resources that are embedded within, available through, and derived from the network of relationships by an individual or social unit. Scholars such as Coleman [14] argue that social capital, unlike all other forms of capital, is located not in the actors, but in their relationships with other individuals and organizations.

Social capital theory refers to the ability of actors to extract benefits from their social structures, networks and memberships [30, 39]. Social networks provided by extended family, community-based or organizational relationships are theorized to supplement the effects of education, experience and financial capital [11, 13, 31]. Social capital is multidimensional, and occurs at both the individual and the organizational levels [36].

Social capital can be a useful resource both by enhancing internal organizational trust through the bonding of actors, as well as by bridging external networks in order to provide resources [2].

Landry [28] measured social capital with six indices: business network, information network, research network, participation assets, relational assets, and trust assets.

The business networks include clients, suppliers, competitors, suppliers of equipment, material and components, consultancy firms, and related firms in your corporate group.

The information networks include trade fairs and exhibitions, professional conferences, meetings and publications, internet-based or computer-based information networks, and patent documents.

The research networks include government research laboratories, technology transfer organizations, universities, and community colleges.

The levels of the relational assets are assessed with the degree of knowing managers and professionals involved in government agencies.

The levels of participation assets are assessed from participation in meetings, associations, and networks of manufacturing firms at four levels: there are regional, provincial, national, and international.

The levels of trust assets are assessed from the condition of success in business relationships based on two factors which (1) clients and suppliers and (2) government agencies and other agencies involved in the promotion of innovation.

2.3. Ecological capital

Human behavior, is, at first, a function of the individual and the environment; and secondly, the individual and the environment need to be compatible [27]. This fit can be conceptualized in a variety of ways, including the match between an individual and his or her job, group, organization, or vocation [24].

Two characteristics commonly examined in organizational ecology research are age and size (Hannan & Freeman 1989). Older firms and populations are mostly presumed to survive better, and larger firms and populations are widely presumed to survive better [32]. Daft [15] added cultural, strategic, and organizational goals issues to this list as content dimensions of organization.

We also believe weather climate and views of an organizational area are ecological capital of organization.

2.4. Human resource management (HRM)

Storey's [44] discussion on the definition of HRM best summarizes the various meanings given to HRM. He points out that there are four meanings frequently attached to HRM. The first is that HRM is simply just another word for personnel management and is also used to cover other concepts such as employee relations and people management. The second meaning refers to the use of specific personnel management techniques in an integrated manner. In this definition, HRM is seen as the unified and coherent use of policies and techniques such as selection, performance appraisal, reward and training to enhance organizational performance. The third meaning emphasizes the importance of a business-oriented and business-integrated approach in the management of employees. This definition emphasizes that the way an organization manages its workforce should match the strategy it pursues. The term "strategic HRM" is often used to refer to this strategically oriented HRM practice. The fourth definition goes to a step further; besides the importance of integration with strategy, it also emphasizes the use of employee management techniques, which seek to develop employee commitment to certain desired outcomes [37].

Human resource management is integrated and strategic approach to manage the most valuable capital of company. HR as a most valuable capital has the biggest contribution to organizational achievement. Attitudes to HRM are divided into three approaches) [4]: high performance management (effects on organizational performance through employees by productivity, quality, levels of delivery improvement of customer services, and more value creation for shareholders), high commitment management (with emphasis on mutual commitment between individual and organization that leads to organizational goal achievement without formal control mechanisms), and high participation management (dealing with employees as partners whom they can decide issues facing related to them).

HRM effects on performance more than special attention on HRM tasks. In other words, HRM is seen as an interacting complex of components rather than as some apparent activities [7, 23, 46, 29].

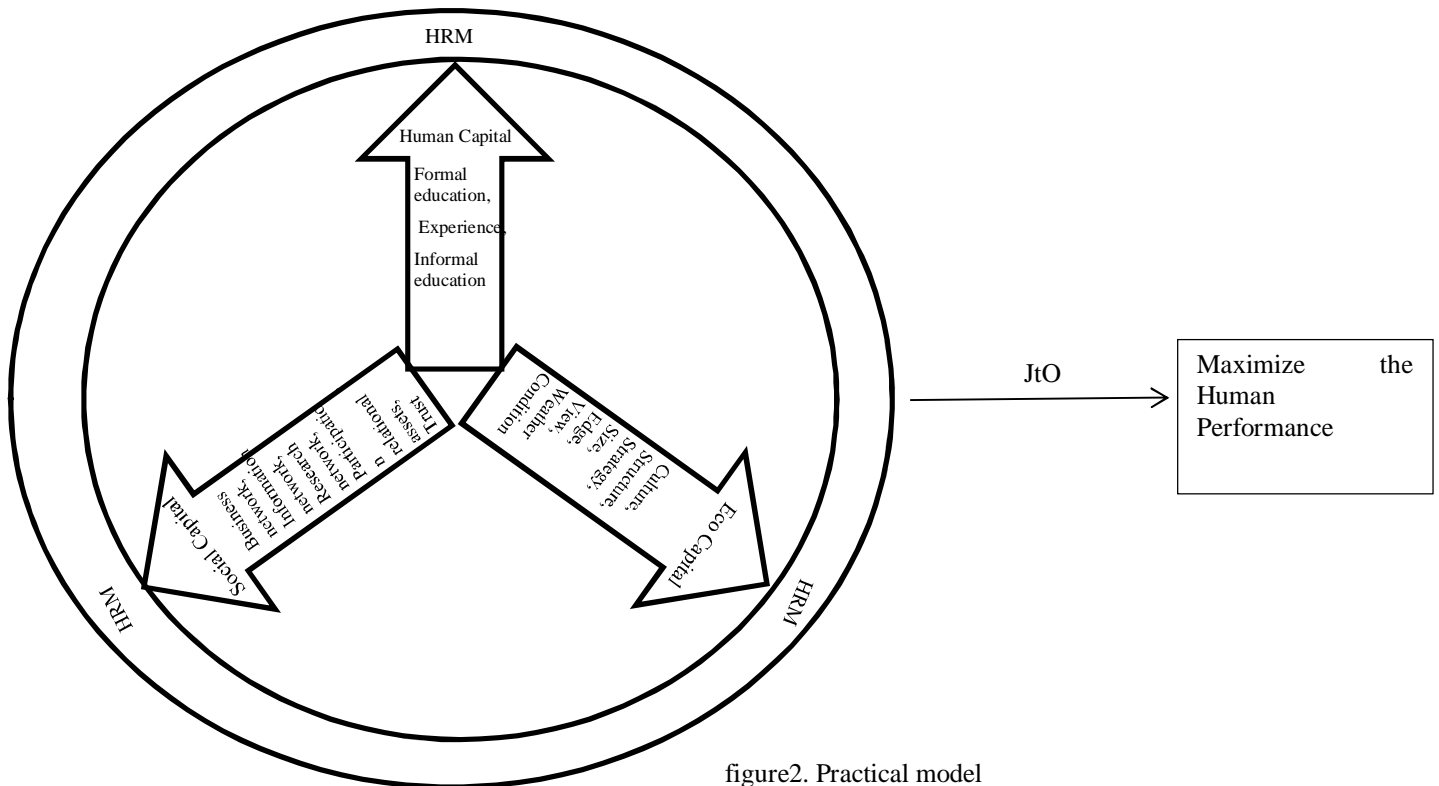
Tichy, Fombrun, and Devanna [45] believe that human resource managers make systematic use of strategically based selection, individual performance appraisal, individual performance-related rewards, and outcome-monitored training and development as means to enhancing performance. Mirsepasi [34] listed four

systems for HRM. These four systems are: (1) absorption, preparation, and adjustment system; (2) training and development system; (3) maintain and protection system; and (4) application.

3. METHODOLOGY

The joint optimization (JtO) design principle is critical for the Troika model. As we have already argued that this principle has been inadequately developed in the ST literature, we want to draw attention to the available choices and the assessment of needs for the correlated, but independent systems. The illustrations are based on the ST model, but the same approach is valid for the relationships of the three systems in interaction. JtO principle is innovative, and supports the anti-theory to the technological imperative. JtO is crucial to the formulation of the socio-ecotechnical extension [21].

Where the achievement of an objective is dependent upon independent but correlative systems, afterward it is impossible to optimize for overall performance without seeking to jointly optimize these correlative systems. Any attempt to optimize for one without due regard to the other will lead to sub-optimal performance generally, so even if an effort is made in an industrial situation to follow the traditional pattern, i.e. to optimize the technical system and hope the social system will drive some-how sort of itself out, then sub-optimization is certain to result. This is also the case when attempting to optimize each system, but independently ignoring interaction effects. It is important to remember that this principle applies where the systems are *independent* but correlative.



The term “technological imperative” has been applied to technological design, which maximizes the utility of technology by paying little or no attention to the interests or needs of people who have to work with or interact with such a design. The JtO principle requires that the three independent, but interacting with technical, social and ecological systems are integrated during the initiation and all subsequent stages of the design process and are optimally, reconciled. For this optimality we should use operational research techniques in data analyses. The practical model for paper is shown in figure2.

3. DISCUSSION

As mentioned before, public sector HRS in Iran is imitation of HRM system techniques of western countries, which get some principals and technics as a best way and little attention to human and ecological issues of organization. The results of these approaches are seen in low job satisfaction, performance, and productivity, thus every effort regardless of human and ecological issues of organization, cannot be helpful to performance improvement. In this paper, we bring up two contributions for HRM and introduce a new term in organizational literature. Our contributions are use socio – technical theory for systems and extended this theory to a Troika model. First, we applied this theory to HRM system, and then we added ecological issues to the theory. The eco capital of organization was the new term we attached to human capital and social capital, and then we are sought for the best combination of these for HRM tasks in Iran. This model will help public managers to pay more attention to which subsystem in HRM tasks. These subsystems have been expressed as human capital, social capital, and eco capital. We also determined indicators for each subsystem. It is impossible to optimize overall performance without seeking to jointly optimize these correlative systems. Any attempts to optimize one without due regard to the other will lead to sub-optimal on the whole performance. This is why we need to use joint optimization.

Given the amount of attention to each subsystem is affected by distinctive condition and different HRM tasks (attraction and selection, development, applying, etc.). Future researchers can use and test the model in their country and organization.

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