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ORIGINAL PAPER

The Survey of Cybernetic Management and its Relation to Organizational Health

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Abstract The purpose of this study was to survey the relationship between Cybernetic Management and Organizational Health in the Iranian Physical Education Organization. The research method that was chosen was of a descriptive and applied type. The study's statistical population included all staff at the Physical Education Organization in Kurdistan province of the Iran, which, at the time of the research numbered 340 individuals. The statistical sample, using the Morgan table, was determined to be 181 individuals. To calculate the reliability of the test questions, Cronbach's Alpha Test used; the obtained alphas for the Cybernetic Management questionnaire, and organizational health questionnaire were 0.87 and 0.89 respectively and were confirmed at the level of (0.001). To analyze the data, descriptive and inferential statistics were used; descriptive statistics were used to describe the research data, and for the inferential statistics the; Kolmogorov–Smirnov test, Pearson correlation coefficient, Friedman ranking test, and Stepwise regression test were used. The significance level of this study was considered to be (0.05) and the software SPSS (18) was used for data analysis. The results of the study show that all alternative hypotheses were supported, and that there was a significant relationship between Cybernetic Management and Organizational Health.

Keywords Cybernetic management · Organizational health · Physical education organization

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Introduction

In recent decades, many advances have been made in organizations and the environment causing managers to be faced with new processes and organized changes (Rodrigues 2007). At the present time that all the organizations are known for adopting with rapid changes, various organizations which place in the hurricane of changes, have been forced to accept this rapid and unprecedented change in order to survive; and so have been forced to update their hardware and software knowledge (Smith 2002). A change of control and leadership method is therefore inevitable, as the traditional method does not have enough effect in relation to new transitions (Dadkhah et al. 2012). The success of any society, whether at the national or international level, depends on the activity and effectiveness of managers and decision makers at all levels (Senge 1990). Organizational Health as a great power, is able to develop an excellent organizational structure and is one of the important factors in establishing a sustainable development within an organization that requires encompasses knowledge, culture and the experiences of managers and staff (Shoaf et al. 2004). A healthy organization is one that is able to meet, recognize and remove the obstacles in the way of its development. Furthermore, it is an organization that is realistic about its own situation, flexible and able to use the best resources to solve problems (Ghorbani et al. 2012). Organizational Health is necessary in physical education organizations in order to encourage social health in sport, and is also very important for retaining a healthy atmosphere in sporting competition. The major concept that traces the health of an organization is Cybernetic Management and its dimensions (McHugh et al. 2003). Cybernetic systems are fundamentally rooted in the concept of feedback control loops and can only react to sensitive stimuli (Kasperska 2002). Schwaninger's study uses a cybernetic approach, and seeks to provide an orderly and organized structure for process planning, production and innovation in the organizational environment. This study also showed how processes in organizations with orientation cybernetics are effective (Schwaninge 2003; Andrew 2011). The cybernetic approach provides a helpful general framework for understanding human behavior. Cybernetic theory was originally developed in order to explain the functioning of self-regulating systems (Ashby 1966; Wiener 1948). According to cybernetic theory, the purpose of self-regulating systems is to decrease the discrepancies between environmental inputs and internal standards that serve as reference criteria. This aim is achieved through a negative feedback loop, which assesses discrepancies between environmental input and internal standards, and attempts to minimize these discrepancies by changing the environment, adjusting standards, or both. Cybernetic theory also has been adapted to explain human behavior, often under the rubric of control theory (Carver and Scheier 1981; Miller et al. 1960), and has been further elaborated to explain specific psychological and behavioral phenomena, for example motivation (Hyland 1987; Klein 1989), goal-setting (Campion and Lord 1982), impression management (Bozeman and Kacmar 1997), and mental and physical health (Hyland 1987). A cybernetic approach in management provides a comprehensive and overall insight. Using cybernetic management, top managers carefully look over conditions within the intra-environment, along with new management technologies and tools (Schwaninge 2003). Raj predicted that Cybernetic Management directly influences Organizational Health, as the health problems of organizations can be mitigated to a large extent, by regulating the life style of human resources. Conversation and communication within a group or with a friend may help people to adopt a healthy organization lifestyle. Therefore, cybernetics, being the study of communication and control can be used to help solve this health problem (Raj 2008). Healthy manpower is one of the most important factors to consider in the creation of a

healthy organization, and healthy organizations are important for developing successful and healthy societies (Ghorbani, Afrassiabi and Rezvani 2012). Healthy organizations handle external deterrent forces successfully and direct them effectively, in line with organizational goals (Dejoy and Wilson 2003).

Lynden and Klingele (2000) state that Organizational Health is almost a new concept for developing and improving the organizational structure. They argue that the supervisors of healthy organizations are committed, dutiful and enjoy a high level of morale, which can be further improved through open communication channels. Furthermore, a healthy organization is a place where people want to stay, work and feel proud of, and so they prove very useful and effective. A healthy organization, more than anything, needs constructive human resource and a healthy official structure (Lynden and Klingele 2000). We believe that research in this area will be useful in identifying pattern of Cybernetic Management and Organizational Health in the organization of physical education, as well as other organizations. Accordingly, the aim of this study is to investigate the relationship between Cybernetic Management and Organizational Health in the organization of Iranian physical education in the Kurdistan province. This study will also, initially, review the existing literature and research on Cybernetic Management and Organizational Health together, as well as their relations with each other. Then, based on the hypotheses, the existing relationships between the research variables will be modeled. To conclude, the results of the study will be outlined and discussed. The main research questions of this study are: Are there significant relationships among Cybernetic Management dimensions? Are there significant relationships among Organizational Health dimensions? Are there significant relationships among Cybernetic Management and Organizational Health? Are there significant differences between rankings of Cybernetic Management dimensions? Are there significant differences between rankings of Organizational Health dimensions? Does Cybernetic Management predict aspects of Organizational Health?

Literature Review

Cybernetic Management

There are several definitions of cybernetics and many people who have influenced the definition and direction of cybernetics. Wiener (1948), a mathematician, architect and social thinker, coined the word "cybernetics", deriving from the Greek word signifying "steersman". Wiener chose this term due to the science of control and communication within both the animal and the machine. For social thinker Mcculloch (1974), cybernetics referred to an experimental philosophy that was concerned with communication, at intervals, among the observers and between the observers and his environment (McCulloch 1974). Beer (1981), an administrative expert, defined cybernetics as the science of effective organization (Beer 1981). Social scientist Bateson (1971), noted that because prior sciences managed matter and energy, the new study of cybernetics focuses on type and pattern (Bateson 1971). For the instructional theoretician, Pask (1975), cybernetics is the art of manipulating defendable metaphors, showing how they may be created and what can be inferred from their existence (Pask 1975). Cybernetics takes as its space the design or discovery and provision of standards of regulation and communication (Ashby 1966). Cybernetic doesn't ask about the nature of a thing, rather "What does it do?" and "What can it do?" as a result of varied systems within the living, social and technological world which can all also be understood from this approach, cybernetics cuts across several

traditional disciplinary boundaries. The various ideas that influence the developing concept of Cybernetics and the diverse range of people who could be considered "Cyberneticians" therefore contribute to and so form a "Metadisciplinary" language through which we can perceive and change our world (von Foerster 1955). Overall, "cybernetics" is not specific discipline. Rather, it ought to be understood as an approach that helps thinkers and practitioners across a whole range of disciplines to achieve a vantage point from which it is possible to realize a more complete understanding of their own areas. Cybernetics' focus is on important and effective action and behavior, regardless of the domain of human activity (Vidgen 1998). Cybernetics is therefore "the conceptualization of the way of regarding one's world" (Hoebele 1994), and so is best thought of as encouraging liberation and inclusion. Inside an explicit profession, field or discipline, cybernetics poses questions to the professional individual, and suggests ways to create their progress and practice simpler within their specific domain of operations. This sometimes means the shifting of attention from things to the relations that may be either determined or inferred from the movement or flow of particular things in regard to alternative things. These 'other things' may solely be inferred from such relations, until a later investigation confirms or not a specific hypothesis, this is called the 'scientific method' (Liebscher 1967).

In short, then, cybernetics offers an optimistic, yet nonetheless realistic, approach to addressing the classical existentialist enigma of a, world of chaos, anxiety and despair (Churchman 1968). Cybernetic Management is that of the concrete application of natural cybernetic laws to all or any kinds of organizations and establishments created by people and to interactions with and among them (Plenert 1995). It is a theory supported by natural laws, and addresses the problems that all who need or intend to influence a corporation in any way must learn to resolve (Espejo and Watt 1988). This theory isn't restricted just to the actions of principal managers, but rather any each member of a corporation who, to a greater or lesser extent communicates or interacts with such issues (Beer 1959). Management cybernetics is supported and was initially created by Stafford Beer in the 1960s, and is a his management theory not restricted only to streamlined and business enterprises (Beer 1979). It was during this time that he developed his 'practical system' model, in order to diagnose the faults of any existing structural system. At that same time, Forrester (1961) was also creating 'systems dynamics', promised that the behavior of total systems might be represented and understood through a modeling of the dynamic feedback method occurring inside them. Jackson (2000) argued that, Cybernetic Management represents very little advance on hardened systems thinking and is subject to the same criticisms. There's very little to distinguish between the two theories. Typical management scientists are able to take cognizance of its insights and to utilize ideas such as feedback in their customary analyses. Cybernetic Management, therefore, does not offer a new direction in systems thinking. Whether or not it supports a machine analogy, or a biological analogy, it is often criticized for the same reasons as hard systems thinking, specifically an inability to contend with subjectivity and with the intense completeness of organizational systems, and for an inherent political orientation (Jackson 2000).

Cybernetic Management has developed as a sub-system of general cybernetics, which is changing along the tome. At once time this term could have related to an ability to manage a ship and its crew effectively. The relationship between cybernetics and human resources, organizations and technology goes back for a protracted period of time, as showed in the Fig 1.

While the Preliminary cybernetic models try to use formal models in order to convey a connection between the biological and the technological, it was Forrester (1960) who initially applied management cybernetics to social systems. The combination of

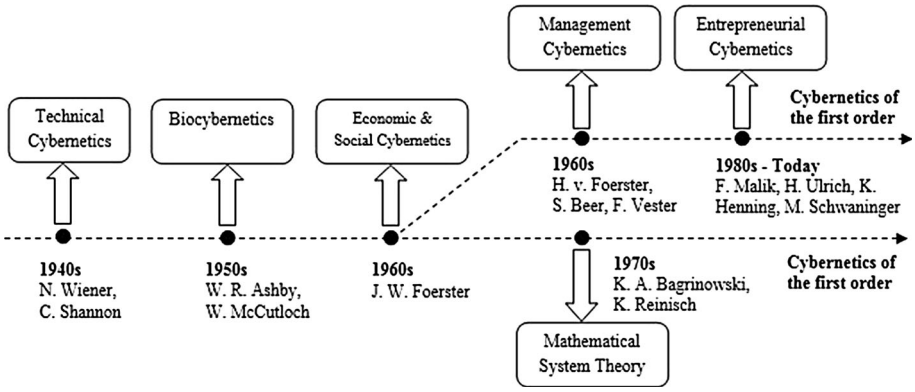

Fig. 1 The origin of management cybernetics (Dietrich, Hartmann, Sander & Strina, 1999)

individuals, and with it the perception of the system as being dynamic and sophisticated, (cybernetics of the second order), was powerfully influenced by the work of Foerster et al. (1960). The involvement of the observer and a robust orientation towards philosophical issues were imperative in this conception.

According to Birnbaum's 1988 theory, there are five classes of paradigms: Cooperative, Bureaucratic, Political, Anarchy and Cybernetics.

Regarding the specifications and differences of each paradigm, Birnbaum (1988) believes that effective construction of a large organization's activities with a complex order is possible, through relying on cybernetic controls. The cybernetic paradigm, as the instruction science and the control of an organization, with relying on proper feedback and weak and strong bond, prepare the ground for improving relations and communications with inter organizational units for self ordering or regulatory that, according to this definition, a cybernetic managerial paradigm has six elements: section, control, weak and strong bond control, communications, hierarchy and leadership (Birnbaum 1988). In their study, Heylighen and Joslyn (2001) define 'cybernetics' as a relation and control in complex systems, which concentrates on feedback or cybernetic cyclic mechanisms. It is a popular term for studying the control and relation of organization, thereby using the name 'cybernetics' is unexpected. In fact, the cybernetic framework provides a background for merging and consolidation of multiple conceptions and domains relating to management (Heylighen and Joslyn 2001). In a 2007 study, Downs showed that there are areas of overlapping interest in both visual communications design and cybernetics, for example concerns with the cyclic nature of coding and decoding information, and also areas that might initially seem divergent but are in fact often complementary, such as the role of the observer as a controller and participant in a system. Furthuremore he proposes that cybernetics uncovers principles at the heart of communication, which in turn inform visual communication practices, which then, in a very circular fashion, inform cybernetics (Downs 2007). Rowe (2010) in a study entitled "The Cybernetics of organizing: management and leadership" shows how management and leadership are key processes in organizing, and need to be in mutual correspondence in order to sustain the viability of the organization (Rowe 2010).

Dadkhah et al. (2012) in their study entitled "Valuation of Impact of Component Interactions and Control Cybernetic Model of the Physical Education Department of

Isfahan" examine a physical education department and the amount of control and interactions between its component part and the elements of the cybernetic model organizing its activities. The results of study suggest that there is a positive trend towards this model in the Physical Education sphere (Dadkhah et al. 2012). Bartscht (2013), in his study, shows that complicated cybernetic systems are authentic as a result of authentic behavior that nurtures the system's identity and ensures that it is ready to consistently generate a clear goal signal (Bartscht 2013).

According to Bartscht 's study, Cybernetic Management is assessed according to the following seven factors: participatory decision-making; commitment; justice in pay; flat structure; accuracy of information; developing a sense of ownership; and, ongoing training and development programs (Asadpour 2009; Rodrigues 2007).

1. *Participatory decision-making*: PDM refers to the extent to which employers allow or encourage employees to share or take part in organizational decision-making (Probst 2005). Participatory decision-making in a cybernetic approach involves all individuals in the decision-making process. Therefore, people are more likely to accept the decisions that are made. In an ideal world, the diverse ideas raised through the participatory method will lead to high quality decisions and an environment of trust. This leads to an effective organization (Filley et al. 1976). In 1988, six dimensions of participatory decision-making were recognized and analyzed; these dimensions are: participating in work decisions; consultative participation; short-term participation; informal participation; employee ownership and representative participation (Cotton, Vollrath, Froggatt, Lengnick-Hall and Jennings 1988).
2. *Commitment*: organizational commitment and commitment to an organization are provided through participatory decision-making. In other words, PDM leads to job satisfaction and improved performance, which are usually evident in increased commitment and productivity (Allen and Meyer Meyer and Allen 2007). Organizational commitment is defined as the degree to which an employee identifies with the organization and wants to continue actively participating within it (Nongo and Ikyanyon 2012).
3. *Justice in pay*: Justice in pay refers to the idea that an action or decision is morally right, which can be defined in reference to ethics, religion, fairness, equity, and/or law (Tabibnia, Satpute, and Lieberman 2008). Organizational justice is conceptualized as a multidimensional construct, the four proposed constituent components of which are: distributive, procedural, interpersonal, and informational justice in pay (Barsky, Kaplan, and Beal 2011).
4. *Flat Structure*: a flat structure is a feature of an organization that has an organizational structure with few or no levels of middle management between its staff and executives. The flat organization structure model promotes employee involvement through a decentralized decision-making process. By elevating the level of responsibility of baseline employees and eliminating layers of middle management, comments and feedback are quicker to filter down to all staff involved in or affected by organizational decisions. In this way, organizational structures are relatively flat due to few management layers. This is made possible by enormous advancements in the communications technologies, which, as Peter F. Drucker notes, enables managers to communicate with a far wider span of individuals than was possible in the past. Spans of control, thus give way to spans of communication (Drucker 1954; Goldberg and Bilder 1987; Gunasekaran 1999).

5. *Accuracy of information*: information that is accurate and timely leads to an increase in understanding and a decrease in uncertainty. Accuracy of information is valuable because it can impact on behavior, decisions, and outcomes (Jumarie 1990). Information is an activity, a life form. Information is a relationship, information is a verb, not a noun; it is something that happens within the field of interaction between minds and objects, or other pieces of information (Fazlollah 1994). Shannon and Weaver (1949) argue that the capacity of information and knowledge transfer decreases uncertainty through communication channels. In fact, if information about the state of system is provided, this will decrease uncertainty of the state in consideration. The more information that is observed, the less uncertainty is present (Shannon and Weaver 1949).
6. *Develop a sense of ownership*: to gain a commitment to new strategies, as well as applying participatory and cooperative social control behaviors, management must be committed to its workers and so develop a "sense of ownership" (Rodrigues 2007). Due to the cooperative culture of Cybernetic Management, informal groups are established within formal organizations and mostly prevent the accomplishment of organizational goals and thereby decrease integration. When Cybernetic Management is in place, people tend not to join informal groups, instead following individual goals that are in line with the organizational goals (Williams 1982).
7. *Ongoing training and development programs*: ongoing training and development programs refers to the development of knowledge, awareness, technical skills, professional skills, occupational skills, and desired behavior among staff. These programs mean that staff are ready to undertake their job's tasks and responsibilities (Rodrigues 2007).

Organizational Health

The roots of Organizational Health, as an idea, began in the 1960s in the United States (Shoaf, Genaidy, Karwowski and Huang 2004). Organizational Health is defined in terms of the way in which an organization is ready to deal with the tensions caused by many and competing values. This requires a dialectical perspective, integration further as disintegration, and a tree-cultural approach to value tensions (Orvik and Axelsson 2012). The idea of Organizational Health is to tell towards an inverse value pyramid and a hybrid and value-based type of management within healthy organizations. The application of this idea will clarify competitive values and help managers to deal with the value tensions underlying work health issues on an organizational personal and group level (DeJoy and Wilson 2003). When considering healthy organizations, one should contemplate the question of healthy for whom? Several definitions of Organizational Health have target the organization itself. For example, Miles (1965) outlined a healthy organization as one that survives, but, additionally, continues to cope adequately over the long-term, unceasingly developing and increasing its brick skills (Miles 1965). Cooper and Cartwright (1994) extended this by combining it with a consideration of the health of staff, and so described a healthy organization as one that is both financially successful and has healthy workers. A healthy organization needed to maintain a healthy and satisfying work environment over time, particularly in times of market turbulence and change (Cooper and Cartwright 1994). Similarly, Quick (1999) indicates that top level of productivity, high worker satisfaction, good safety records, few incapacity claims and union grievances, low staff absence, low turnover, and the absence of asperity characterize a healthy work environment

(Quick 1999). One may also extend the idea of Organizational Health to the community in which the organization is located (Cohen 1985). Such an extension makes clear the public health perspective of activity, health psychology and particularly prevention. Prevention programs are geared towards raising the health of organizations and profits both organizations and the people within them as they repeat a value placed on people, human activities and human relationships (Rosen 1986; Schein 1990). The concept of Organizational Health blends the pursuit of personal welfare with organizational effectiveness in order to yield a strategy for economic resilience (Shoaf et al. 2004). Maintaining Organizational health an organization requires managers who can handle and replicate totally different and conflicting logics and alter dynamics. This is known as hybrid management, the combination of both skilled and management knowledge (Orvik and Axelsson 2012). Rosen (1991) delineates a healthy company as one that collectively holds and manifests a core set of humanistic values: commitment to self-knowledge and development; firm belief in decency, respect for person variations, spirit of partnership, high priority for health and well-being; appreciation of flexibility and resilience; and, fervor for product and method (Rosen 1991).

Although these descriptions offer an ideology and list of benefactors of Organizational Health, they fail to outline the aspects of a company that act to enforce this level of well-being. Williams (1994) noted four components of Organizational Health, namely: environmental factors; physical health; psychological health; and, social health. He also argued that the main point of an intervention is to take a holistic approach to workers' health.

Judgments on organizational health also determine how much effort it will take for an organization to perform a particular task, and for how long they will persist. Organizations with good health show greater efforts in tackling a challenge, whilst those in weak health are likely to reduce their efforts or even abandon the attempts (Rahimi, Haji, Irani and Noruzi 2012). In their research Orvik and Axelsson (2012) assert that the main aim of a healthy organization is to care for the health of its people. Thus, there is a powerful relationship between effectiveness and Organizational Health. Issues of efficiency may threaten Organizational Health, and health considerations may also be an obstacle to organizational efficiency. Similarly, Organizational Health is necessary to achieve efficiency in a healthy organization, and this efficiency may give rise to Organizational Health. Hoy and Miksel (1991) introduced seven sub-dimensions: organizational integrity; initiating structure; manager's influence; resource support; consideration; morale; and, academic emphasis. Organizational integrity refers to the coping ability of the organization, which in turn preserves the integrity of organizational programs. The initiating structure is the way in which the manager specifies standards of performance and expectations for work. The manager's influence concerns the manager's ability to influence the actions of his superiors. Resource support is the organization's ability to provide adequate work supplies. Consideration requires the managers' behavior to be friendly and supportive. Morale encompasses the trust, enthusiasm and confidence of colleagues Table 1.

In research on Organizational Health carried out by Lynden and Klingele (2000), the statistical analysis of their findings reveals eleven key elements of Organizational Health:

1. *Relationship*: in a healthy organization, consecutive relationships between employees and people must expedite appropriately the same with subordinates and senior officers. The relationship must be mutual, and should be established at all levels of an organization.
2. *Involvement*: in healthy organization, workers and personnel at all levels should be involved the organization's with decision-makings process.

Table 1 Imperative functions and organizational health dimensions

Organizational health dimension	Function	Activity
Organizational integrity	Adaptation	Instrumental
Initiating structure	Goal achievement	Instrumental
Managers' influence	Integration & latency	Expressive
Resource support	Adaptation	Instrumental
Consideration	Integration & latency	Expressive
Morale	Integration & latency	Expressive
Academic emphasis	Goal achievement	Instrumental

3. *Loyalty and commitment*: in a healthy organization there is a high level of trust and confidence among personnels.
4. *Fame or prestige of the organization*: in a healthy organization, perceptions of the organization will be of the positive credit and status of its workers, and, as a result of this, workers will value and honor the status and validity of their department or division.
5. *Morale*: good morale within an organization is established in a friendly environment where workers like both one another and their job.
6. *Ethics*: in a healthy organization, generally, there is no immoral behavior, as workers want to respect and value the inner ethics and conducts that the organization encourages.
7. *Cognition of performance*: in a healthy organization staff are inspired to actualize their skills, and are supported in doing this. Generally, they feel that theyare beneficial to the organization.
8. *Path of target*: in healthy surroundings workers are able to acknowledge high concentration of their departments and distinguish aims within the organization, which is shown in the formulation of goals.
9. *Leadership*: leaders decide on issues of on profitability and the effectively and effectiveness of the organization. Leaders typically display friendly behavior and employees and people will establish relationships with them with case and in peace of mind.
10. *Staff development*: in a healthy organization there will usually be a special board to support coaching and his continual improvement of the existing workforce.
11. *Application of resources*: staff should observe that resources and facilities are divided among them deservedly and appropriately, and in accordance with their expectations relating to their progress. In a healthy organization, the forces of the system, particularly employees are used effectively, i.e., individuals are neither left unemployed or having to work more than their regular hours.

The concept of Organizational Health is a distinctive and unprecedented one, which provides us to with bigger picture of Organizational Health. In healthy organizations, workers and people are committed, duty finite and beneficial, have high performance and are in good spirits (Motevallizadeh and Zakiani 2011).

Cybernetics and Health Research

In the scope of this research, on the direct relationships between cybernetics and health, some minor studies and researches are identified.

Fang et al. (2005), conducted a study entitled "Effect of Control Systems on Attribution Processes and Sales Outcomes: A Cybernetic Information-Processing Perspective which suggested that sales control systems affected salespeople's attribution processes in ways that indicate that these processes are more malleable than has been previously theorized in the marketing literature. Furthermore, the study demonstrates that control systems differentially affect attribution processes across two cultures: the United States and China.

Korkmaz (2007) confirms the relationship between transformational leadership and Organizational Health. Haynes (2008) further evaluated the impact of the office environment on an organization's productivity, and found that the environment considerably impacts upon productivity. Furthermore, Claudia (2008) found a direct and positive relationship between transformational leadership and Organizational Health. Dobers and Soderholm (2009) again investigated the association between the environment and Organizational Health and organizational change, concluding that both environment and Organizational Health affect organizational change.

Qorbanizadeh and Assadpoor (2010) find that Cybernetic Management directly influences learning culture and organizational learning, and furthermore, it indirectly influences learning culture through the moderate variability of organizational learning.

The results of a survey by Pérez (2010) contained within a study entitled "Models of organizational cybernetics for diagnosis and design" show that managers design the organization in such a way that the organization is formalized in a structured sequence starting with the clarification of an organization's identity, purpose and boundaries, which guides the whole process of structure creation and a detailed diagnosis of its structural components from a viability perspective. This work presents; a preliminary framework for studying complex organizations, one based on Beer's (2002) managerial cybernetics and VSM. This framework is designed to help in the process of diagnosing and designing organizations. (Pérez 2010).

Zahraei and Rajaeipoor (2011) examine the relationship between staff's intelligence and Organizational Health in the context of universities in Isfahan, during academic years 2009–2010. They found that there was a moderate relationship between the intelligence staff and Organizational Health.

Ramdas and Lewis (2011) offer a research model aiming to determine the effects of Organizational Health factors on primary school performance in Trinidad and Tobago. They suggest that the model be applied in the evaluation of schools in other developed countries. The following factors were found to be influenced by Organizational Health: outside of school factors, school-oriented factors, and school output. The growing environmental changes increase complexity, ambiguity and challenges, and so the old paradigm focusing on the command and control of specialization and efficiency (multilevel organization) is out of date.

Aghili, Mohamadi and Ghorbani (2012), in their study "Evaluating the Relationship Between Happiness and Mental Health in Iranian Athletes" indicates that there is a statistical significant increase in athletes' levels of happiness on the day of a competition compared with before a competition and a statistically significant decrease in athletes' mental health on the day of competition rather than before competition. Finally, they observe a significant increase in athletes' levels of happiness on the day of a competition after gathering information for two times, and a statistically significant decrease in the level of athletes' mental health on the day of a competition compared with before a competition.

Azimi et al. (2013) investigated the relationship between unity of existence and cybernetic science by presenting various viewpoints of mystics and philosophers, such as Ibn Arabi.

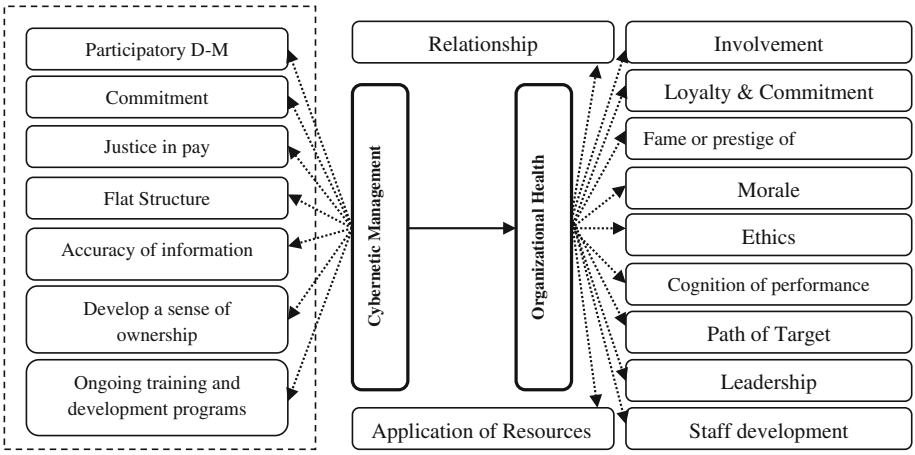

Fig. 2 Proposed research model

Proposed Research Model

For this research, considering the relations among the variables, the Conceptual Model is illustrated as below, Fig (2). The model is delineated according to research title, the provided theoretical basis and also according to the research literature. According to Fig (2), the proposed research model is derived from the Cybernetic Management Models offered by Asadpour (2009) and Rodrigues (2007), and the Organizational Health model proposed by of Lynden and Klingele (2000).

Research Hypotheses

H1 There are significant relationships among Cybernetic Management dimensions
H2 There are significant relationships among Organizational Health dimensions
H3 There is a significant relationship between Cybernetic Management and Organizational Health
H4 There are significant differences between the rankings of Cybernetic Management dimensions
H5 There are significant differences between the rankings of Organizational Health dimensions
H6 Cybernetic Management predicts aspects of Organizational Health

Research Methodology

The Research Method

The purpose of this study is to survey the relationship between Cybernetic Management and Organizational Health in Iranian Physical Education Organization. The research

method is of descriptive and applied type. The study's statistical population includes all staff of the Physical Education Organization in the Kurdistan province of Iran. Their number, at the time of the research, was 340 individuals; the statistical sample using the Morgan table, is 181 individuals. Independent variables in this study are the dimensions of Cybernetic Management (participatory decision-making, commitment, justice in pay; flat structure; accuracy of information; develop a sense of ownership; ongoing training and development programs). The dependent variables in this study are aspectso of Organizational Health, including: relationship; involvement; loyalty and commitment; fame or prestige of the organization; morale; ethics; cognition of performance; target path; leadership; staff development; and, application of resources.

Measurement Instruments

In this study, two questionnaires are used: (a) the Cybernetic Management questionnaire developed by Asadpour (2009) and Rodrigues (2007), containing 23 questions with a five level option scale (very low; low; medium; high; very high, respectively) and (b) the Organizational Health questionnaire offered by Lynden and Klingele (2000), which consists of 44 questions.

Validity and Reliability of Questionnaires

The validity of the questions used, as well as the validity and accuracy of the questionnaire, was confirmed by a number of experts and masters (34 individuals). The standardization of the questionnaires and their normalization in other studies also provided further validation of the test. To calculate the reliability of the test questions, Cronbach's alpha test was used and the alphas that were obtained for the Cybernetic Management and Organizational Health were 0.87 and 0.89 respectively which were confirmed at the level of (0.001).

Methods of Statistical Analysis

To analyze the data, descriptive and inferential statistics were used. Descriptive statistics were used to describe the research data and for inferential statistic the Kolmogorov–Smirnov test, the Pearson correlation coefficient, the Friedman ranking test, and the Stepwise regression test were used. The significance level of this study was considered to be (0.05) and the software SPSS (18) was used for data analysis.

Results

Sample Descriptive Data

Table 2 explains the results of the study's descriptive information regarding gender, age, education and work experience.

Table 2 shows that most of the questionnaire respondents to were female employees, a shown by the 'Gender' column. The 'Age' column shows that most of the respondents were either 'under less than 30 years', 'between 30 and 40 years' and 'between 40 and 50 years' old. Furthermore, 11.3 % of respondents had a diploma degree, 15.47 % held up to diploma level degrees, 51.65 % held a B.A. Degree, 15.50 % held an M.A. degree, and

Table 2 Descriptive statistics

Gender		Age		Education		Work experience	
Level	Percent	Level	Percent	Level	Percent	Level	Percent
		Under 30 years	25.7	Diploma	11.3	Under 5 years	4.8
Male	48.5	30–40	30.3	Up to diploma	15.47	5–10	15.5
		40–50	31.0	B.A.	51.65	10–15	32.8
Female	51.5	Up 50 years	13.0	MA	15.50	15–20	18.5
				PhD	6.08	Up 20 years	28.4
Total	100		100		100		100

The total number of samples (employees): 181

Table 3 Kolmogorov–Smirnov test for the dimensions of cybernetic management

Variables	Sig	Results
Participatory decision-making	0.424	Normal
Commitment	0.376	Normal
Justice in pay	0.354	Normal
Flat structure	0.239	Normal
Accuracy of the information	0.396	Normal
Develop a sense of ownership	0.410	Normal
Ongoing training and development programs	0.321	Normal
Cybernetic management	0.390	Normal

6.08 % held a PhD degree. Finally, the 'Work Experience' column shows that, of the respondents, most had between 10 and 15 years, or over 20 years work experience.

Results Obtained from the Hypotheses Test

Data Normality Test

In order to investigate the normality hypothesis of Cybernetic Management and Organizational Health, the Kolmogorov–Smirnov (K–S) test was used and results are shown in Tables 3 and 4.

Based on the results of Tables 3 and 4, a significance level of aspects both of Cybernetic Management and Organizational Health is larger than 0.05, therefore, as a result, the normality of the data is confirmed.

Results of Inferential Analysis

H1 There are significant relationships among Cybernetic Management dimensions

The test results for the identification of significant relationships among Cybernetic Management dimensions are shown in Table 5.

The results displayed in Table 5 show that the significance level among dimensions of Cybernetic Management identified by the correlation test is <0.001. Therefore, it can be

Table 4 Kolmogorov–Smirnov test for the dimensions of organizational health

Variables	Sig	Results
Relationship	0.406	Normal
Involvement	0.389	Normal
Loyalty and commitment	0.421	Normal
Fame or prestige of the organization	0.487	Normal
Morale	0.375	Normal
Ethics	0.398	Normal
Cognition of performance	0.416	Normal
Target path	0403	Normal
Leadership	0.455	Normal
Staff development	0.399	Normal
Application of resources	0.403	Normal
Organizational health	0.415	Normal

said that there are significant relationships among the dimensions of Cybernetic Management dimensions, and the most related dimensions are found to be 'Commitment–Justice in pay', and 'Participatory decision-making'–Accuracy of information'.

H2 There are significant relationships among Organizational Health dimensions

The test results relating to significant relationships among Organizational Health dimensions are shown in Table 6.

The results of Table 6 show that the significance level among the different dimensions of Organizational Health by the correlation test is <0.001. Therefore, it can be said that there are significant relationships among the dimensions of Organizational Health, particularly between the dimensions of 'Moral' and 'Ethics'.

H3 There is a significant relationship Cybernetic Management and Organizational Health

Test results of correlation between Cybernetic Management and the Organizational Health are shown in Table 7.

In order to analyze the relationship between Cybernetic Management and Organizational Health, the Pearson R significance test is used. The results obtained from this analysis indicate that there is a relationship between Cybernetic Management and Organizational Health, variables, of (0.84) to a meaningful level of (Sig = $p < 0.01$). Analysis reveals that the intensity of the correlation between the two variables is 0.84, which is strong, the type of correlation between two variables is direct (positive) and the calculated significance level (Sig = $p < 0.01$) is also below ($\alpha = 0.05$) indicating that the relationship between the two variables mentioned above is significant, and so therefore this hypothesis is confirmed. However, it is noteworthy that relationship between the dimensions of Cybernetic Management and Ethics were neither significant nor reversely significant. Among these dimensions, the most significant identified relationship was between Cybernetic Management and 'Cognition of performance' ($r = 0.88$, $p < 0.01$). The lowest degree of relationship found was between 'Ongoing training and development programs' and Leadership ($r = 0.14$, $p > 0.05$).

Table 5 The pearson correlation coefficient test for relationships among cybernetic management dimensions

Variables	Intensity correlated	Sig	Hypothesis result
Participatory decision-making—Commitment	0.68	<0.001	Confirmed
Participatory decision-making—Justice in pay	0.71	<0.001	Confirmed
Participatory decision-making—Flat structure	0.74	<0.001	Confirmed
Participatory decision-making—Accuracy of information	0.82	<0.001	Confirmed
Participatory decision-making—Develop a sense of ownership	0.69	<0.001	Confirmed
Participatory D-M—Ongoing training and development programs	0.70	<0.001	Confirmed
Commitment—Justice in pay	0.83	<0.001	Confirmed
Commitment—Flat structure	0.75	<0.001	Confirmed
Commitment—Accuracy of information	0.79	<0.001	Confirmed
Commitment—Develop a sense of ownership	0.73	<0.001	Confirmed
Commitment—Ongoing training and development programs	0.70	<0.001	Confirmed
Justice in pay—Flat structure	0.75	<0.001	Confirmed
Justice in pay—Accuracy of the information	0.63	<0.001	Confirmed
Justice in pay—Develop a sense of ownership	0.70	<0.001	Confirmed
Justice in pay—Ongoing training and development programs	0.67	<0.001	Confirmed
Flat structure—Accuracy of the information	0.76	<0.001	Confirmed
Flat structure—Develop a sense of ownership	0.79	<0.001	Confirmed
Flat structure—Ongoing training and development programs	0.77	<0.001	Confirmed
Accuracy of the information—Develop a sense of ownership	0.75	<0.001	Confirmed
Accuracy of information—Ongoing training and development programs	0.66	<0.001	Confirmed
Develop a sense of ownership—Ongoing training and development programs	0.71	<0.001	Confirmed

Table 6 The Pearson correlation coefficient test about relationships among Organizational Health dimensions

Variables	Intensity correlated	Sig	Hypothesis result
Relationship—Involvement	0.77	<0.001	Confirmed
Relationship—Loyalty and commitment	0.74	<0.001	Confirmed
Relationship—Fame or prestige of the organization	0.64	<0.001	Confirmed
Relationship—Morale	0.70	<0.001	Confirmed
Relationship—Ethics	0.71	<0.001	Confirmed
Relationship—Cognition of performance	0.71	<0.001	Confirmed
Relationship—Target path	0.69	<0.001	Confirmed
Relationship—Leadership	0.79	<0.001	Confirmed
Relationship—Staff development	0.80	<0.001	Confirmed
Relationship—Application of resources	0.78	<0.001	Confirmed
Involvement—Loyalty and commitment	0.84	<0.001	Confirmed
Involvement—Fame or prestige of the organization	0.79	<0.001	Confirmed
Involvement—Morale	0.78	<0.001	Confirmed
Involvement—Ethics	0.69	<0.001	Confirmed
Involvement—Cognition of performance	0.75	<0.001	Confirmed
Involvement—Target path	0.67	<0.001	Confirmed
Involvement—Leadership	0.78	<0.001	Confirmed
Involvement—Staff development	0.68	<0.001	Confirmed
Involvement—Application of resources	0.77	<0.001	Confirmed
Loyalty and commitment—Fame or prestige of the organization	0.80	<0.001	Confirmed
Loyalty and commitment—Morale	0.65	<0.001	Confirmed
Loyalty and commitment—Ethics	0.77	<0.001	Confirmed
Loyalty and commitment—Cognition of performance	0.86	<0.001	Confirmed
Loyalty and commitment—Target path	0.84	<0.001	Confirmed
Loyalty and commitment—Leadership	0.79	<0.001	Confirmed

Table 6 continued

Variables	Intensity correlated	Sig	Hypothesis result
Loyalty and commitment—Staff development	0.78	<0.001	Confirmed
Loyalty and commitment—Application of resources	0.83	<0.001	Confirmed
Fame or prestige of the organization—Morale	0.78	<0.001	Confirmed
Fame or prestige of the organization—Ethics	0.77	<0.001	Confirmed
Fame or prestige of the organization—Cognition of performance	0.80	<0.001	Confirmed
Fame or prestige of the organization—Target path	0.75	<0.001	Confirmed
Fame or prestige of the organization—Leadership	0.67	<0.001	Confirmed
Fame or prestige of the organization—Staff development	0.65	<0.001	Confirmed
Fame or prestige of the organization—Application of resources	0.64	<0.001	Confirmed
Morale—Ethics	0.89	<0.001	Confirmed
Morale—Cognition of performance	0.78	<0.001	Confirmed
Morale—Target path	0.69	<0.001	Confirmed
Morale—Leadership	0.77	<0.001	Confirmed
Morale—Staff development	0.71	<0.001	Confirmed
Morale—Application of resources	0.63	<0.001	Confirmed
Ethics—Cognition of performance	0.69	<0.001	Confirmed
Ethics—Target path	0.77	<0.001	Confirmed
Ethics—Leadership	0.86	<0.001	Confirmed
Ethics—Staff development	0.80	<0.001	Confirmed
Ethics—Application of resources	0.67	<0.001	Confirmed
Cognition of performance—Target path	0.81	<0.001	Confirmed
Cognition of performance—Leadership	0.80	<0.001	Confirmed
Cognition of performance—Staff development	0.77	<0.001	Confirmed
Cognition of performance—Application of resources	0.69	<0.001	Confirmed
Target path—Leadership	0.76	<0.001	Confirmed

Table 6 continued

Variables	Intensity correlated	Sig	Hypothesis result
Target path—Staff development	0.66	<0.001	Confirmed
Target path—Application of resources	0.70	<0.001	Confirmed
Leadership—Staff development	0.82	<0.001	Confirmed
Leadership—Application of resources	0.78	<0.001	Confirmed
Staff development—Application of resources	0.80	<0.001	Confirmed

Table 7 Relationship between cybernetic management and organizational health

Dimensions	Participatory decision-making	Commitment	Justice in pay	Flat structure	Accuracy of information	Develop a sense of ownership	Ongoing training	Cybernetic management
Relationship	0.49**	0.56**	0.49**	0.44**	0.47**	0.46**	0.49**	0.61**
Involvement	0.57**	0.50**	0.45**	0.36**	0.36**	0.51**	0.56**	0.55**
Loyalty and commitment	0.61**	0.58**	0.50**	0.47**	0.52**	0.53**	0.56**	0.70**
Fame or prestige of the organization	0.54**	0.47**	0.52**	0.45**	0.57**	0.45**	0.55**	0.63**
Morale	0.60**	0.59**	0.54**	0.60**	0.53**	0.65**	0.61**	0.73**
Ethics	−0.36**	−0.36**	−0.13	−0.25*	−0.13	−0.35**	−0.41**	−0.37**
Cognition of performance	0.77**	0.75**	0.60**	0.702**	0.73**	0.73**	0.76**	0.88**
Target path	0.64**	0.70**	0.64**	0.58**	0.58**	0.64**	0.63**	0.79**
leadership	0.31*	0.38**	0.40**	0.33**	0.44**	0. 34**	0.14	0.38**
Staff development	0.47**	0.49**	0.51**	0.50**	0.48**	0.45**	0.40**	0.58**
Application of resources	0.54**	0.55**	0.34**	0.44**	0.45**	0.46**	0.51**	0.59**
Organizational health	0.70**	0.71**	0.70**	0.64**	0.71**	0.66**	0.65**	0.84**

Table 8 Results of cybernetic management dimensions' ranking among staff

Dimensions of cybernetic management	The mean rankings
Accuracy of information	4.30
Commitment	3.80
Participatory decision-making	3.39
Justice in pay	3.06
Develop a sense of ownership	3.05
Ongoing training and development programs	2.78
Flat structure	2.45

Table 9 Results of friedman test

N	181
Chi square	67.375
Sig	<0.001

Table 10 Results of organizational health dimensions' rankings among staff

Dimensions of organizational health	The mean rankings
Loyalty and commitment	4.45
Leadership	3.90
Morale	3.73
Target path	3.60
Fame or prestige of the organization	3.54
Ethics	3.50
Involvement	3.45
Staff development	3.25
Relationship	3.09
Cognition of performance	2.90
Application of resources	2.75

H4 There are significant differences between the rankings of Cybernetic Management dimensions

The results for *H4* are shown in Tables 8 and 9.

According to the level of significance (<0.001) shown in Table 9, significant differences among ratings of dimensions of Cybernetic Management are typical. The average rating results in Table 8 show that the dimension 'Accuracy of information', with a rate of 4.30, is the priority and the dimension 'Flat structure' with the rate of 2.45 has the least priority of the Cybernetic Management dimensions'.

H5 There are significant differences between the rankings of Organizational Health dimensions

The results of *H5* are shown in Tables 10 and 11.

According to the level of significance (<0.001) shown in Table 11, significant differences among the ratings of dimensions of Organizational Health are typical. The average

Table 11 Results of friedman test

N	181
Chi square	64.225
sig	<0.001

Table 12 Regression model summary

R	R^2	Adjusted R^2	Std. Error of the estimate	F	sig
0.86	0.74	0.71	0.23	33.11	<0.001

Table 13 Regression coefficient table

Model		Unstandardized coefficients		Standardized coefficients	t	Sig
1						
Predicted variable	Criterion variables	B	Std. Error	Beta		
Organizational health	Constant value	0.79	0.15	–	4.5	0.001
	Cybernetic management	1.214	0.033	0.86	33.15	<0.001

rating results in Table 10, show that the dimension 'Loyalty and commitment', with a rate of 4.45, is the priority, and the dimension 'Application of resources' with a rate of 2.75 has the least priority, the Organizational Health dimensions rankings.

H6 Cybernetic Management predicts aspects of Organizational Health

The results of *H6* are shown in Tables 12 and 13.

It is clear from Table 13, it can be seen that the significance level revealed by the test is a constant value of less than 1 %, so the constant value affected by the dependant value. The *T* Test significance level of the Cybernetic Management, variable is less than 1 % so it can take part in the equation, or, in other words, it is affected by the dependant variable.

$$Y = a + (b_1 x_1)$$

Organizational Health = 0.79 + 1.214 (Cybernetic Management).

Based on the tables provided above, it can be seen that there will be an increase of 1.214 units of Organizational Health in employees where there is a one unit change in the Cybernetic Management variable. In other other words, it is possible to predict Organizational Health based on Cybernetic Management within physical education organizations, and so Cybernetic Management is able to predict the Organizational Health.

Discussion and Conclusion

Enterprise environments are varied, which leads to new challenges. Survival, growth and development are facilitated through organizational compatibility with dynamics and

changes. Therefore, to satisfy this condition, organizations should plan appropriate and flexible structures; Organizational Health is one of the key characteristics of such an organizational structure. A Cybernetic approach to management provides a comprehensive and overall insight. With Cybernetic Management, top managers carefully look over conditions within the intra-environment, and make use of new management technologies and tools. Cybernetic Management should develop as participatory culture. According to this study, dimensions of Cybernetic Management were intended as the independent variable and the dependent variable were the dimensions of Organizational Health. The aim of this study was to survey the relationship between Cybernetic Management and Organizational Health in the Iranian Physical Education Organization in the Kurdistan province. In some cases the results of this study were similar to the findings of Lynden and Klingele (2000); Fang et al. (2005); Korkmaz (2007); Rodrigues (2007); Downs (2007); Haynes (2008); Dobers and Soderholm (2009); Qorbanizadeh and Assadpoor (2010); Rowe (2010); Ramdas and Lewis (2011); Zahraei and Rajaeipoor (2011) Aghili, Mohamadi and Ghorbani (2012); Orvik and Axelsson (2012); Dadkhah et al. (2012); Azimi et al. (2013); Bartscht (2013); in all of which the importance Cybernetic Management and Organizational Health have been emphasized. The findings descriptive statistics of this research show that 51.5 of the respondents are female and s respondents held a Bachelor's degree and had between 10 and 15 years, or over 20 years' work experience. The result of *H1* is that there are significant relationships among Cybernetic Management dimensions. The results support this hypothesis, with the correlation test showing a significance level among dimensions of Cybernetic Management of (<0.001), with the strongest relationships identified between the dimensions of 'Commitment' and 'Justice in pay'. In relation to *H2*, the results show there are significant relationships among Organizational Health dimensions. The results of the correlationtest for this hypothesis show that significance level among the dimensions of Organizational Health is (<0.001) with the strongest relationships found between the dimensions of 'Morale and Ethics'. Regarding *H3*, the results indicate that there is a significant relationship between Cybernetic Management and Organizational Health. The results indicate that the relationship between the variables of Cybernetic Management and Organizational Health (0.84) is meaningful, at the level of ($\text{Sig} = p < 0.01$) and it can be concluded that the intensity of the correlation between the two variables is 0.84, which is strong, and that the type of correlation between the two variables is direct (positive). Furthermore, the calculated significance level ($\text{Sig} = p < 0.01$) is below ($\alpha = 0.05$) confirming a significant relationship between the two afore mentioned variables, therefore, this hypothesis is confirmed. Moreover, the relations between the dimensions of Cybernetic Management and Dimensions of Organizational Health were significant. One notable anomaly is that the relation between the dimensions of Cybernetic Management and 'Ethics' were not found to be significant or reversely significant. Among the dimensions of Organizational Health, 'Cognition of performance' has the strongest relationship with Cybernetic Management. The weakest relationship was found between 'Ongoing training and development programs' and 'Leadership'. Arguably, this lack of relationship between Cybernetic Management and 'Ethics' is due to a contrast between moral conditions and Cybernetic Management in a physical education organization. Therefore, managers should reconsider the value placed on admiring characteristics, the development of human relations, and ethics. Rodrigues (2007) indicates that a lack of 'Ongoing training and development programs' in line with technological changes will threaten organizational survival. Cybernetic Management designs updated programs in order to develop not only technical knowledge, but also the mental framework of individuals. Considering the significant relationship between

Cybernetic Management and Organizational Health, these concepts should be regarded as important factors in any physical education organization. Similarly participatory decision making and justice in pay foster commitment, and on-job training, positive relationships and high levels of individual and group morale direct organizational aim, encouraging effectiveness, efficiency, and productivity in a physical education organization. Regarding *H4*, the results show that there are significant differences between the rankings of Cybernetic Management dimensions. The average rating results relating to this hypothesis show that the dimension of 'Accuracy of the information' with a rate of 4.30, is high priority, and the dimension of 'Flat structure' with a rate of 2.45 is the lowest priority out of the ranking of dimensions of Cybernetic Management. The results relating to *H5* show that there are significant differences between the rankings of the different Organizational Health dimensions. The average rating results relating to this hypothesis show that the dimension of 'Loyalty and commitment' with a rate of 4.45, is high priority, and the dimension of 'Application of resources' with a rate of 2.75 has the least priority out of all the Organizational Health dimensions rankings. Finally, in relation to *H6*, the results show that Cybernetic Management predict aspects of Organizational Health. The results of the regression test, regarding this hypothesis, show that Cybernetic Management, as a dependant variable, could specify the model, with a rate of 1.214. In other words, it predicted the dependant variable (Organizational Health). Cybernetics therefore can explain fairly-open systems, based on a view of reciprocal information that will be transferred between an organization and environment. The structure of systems is described as based on a reciprocal view of transferring information between different elements (Lerner 1987). Under Cybernetic Management, the uncertainty of environmental changes, broad information division, and high individualism is transformed into group organizational efforts. Cooperation, coordination, and relationships are enhanced at both an individual and organizational level. A participatory-environmental management is developed through transferring correct information so that managers and staff are able to work together without problem (Rodrigues 2007). The lack of inefficient functions and systems on one hand and the application of Cybernetic Management on the other, make an organization resistant to environmental threats, and so improve its organizational health. The effect of 'Accuracy of information', 'Commitment', 'Participatory decision-making' and 'Justice in pay' within sports organizations should be better considered and developed. Participatory decision-making is particularly significant for decisions related to the lower levels of an organization. Delegation of authority can enhanced loyalty and lead to high morale and staff development. Participatory decision making is also closely related to commitment, leading to better identifications of aims and goal directions. It also increases morale, reputation, and portrays a favorable image of the organization. Justice in pay raises productivity, and is a stimulating factor among staff, therefore if managers want to motivate staff, they can do this by paying more attention to justice in pay and fair behavior. A further principle of Cybernetic Management within organizations is personal knowledge a task. Lack of access to new information means that organizations are incompatible with environmental changes. Therefore staff should transfer new information with each other, resulting in the development of group working. Sports managers particularly are recommended to make participatory decisions so as to achieve their goals. With participatory decision making, they are able to draw on the insight contribute by all staff and experts. So, effective relationships, maximum participation, commitment, high morale, and strong leadership are key. It is also advisable to motivate staff through both material and virtual rewards in line with the task. This leads to an increase in commitment to the task and desire to complete it. Managers' interactions should satisfying the staff, as appropriate and

effective interactions result in clear expectations and, therefore satisfactory performance. Moreover, an organized information system is required to develop knowledge within organizations. Finally, modern technology and updated knowledge must not be ignored in the competitive world of organizations and organizations' managers should invest in these in order to survive in this world.

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