

STUDIES ABOUT THE STRUCTURAL COMPLEXITY OF THE COLLECTIVE SPORTS GAMES

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Abstract

This was an exploratory research that aims to study the complexity by eleven central terms, like: system, disorder, and others. Besides studying the Collective Sports Games (CSG) to substantiate the conceptual proposal of the Structural Complexity of the Game (SCG) and the objective one with the Structural Complexity of the Game Index (SCGI).

Key words: Sport pedagogy, Paradigm, Organization, Tectology.

Introduction

Through the paradigm transition from simplicity to complexity (Morin, 2013), the sport pedagogy raised the game as a big teaching strategy, but also, as a complex system which demands the study of its complexity for a better pedagogically use. Thus, this research aims to study the complexity in the CSG to substantiate conceptual and logically an objective parameter able to measure the SCG from of some indicators inserted in a constructed formula.

Results and Discussion

The results of this research came from the previous discussion and exploration upon eleven central terms of the Structural Complexity of the Game, which are: systems, agents, goal, cooperation, competition, organization, chaos, order, disorder, complexity and problem. From this, we could realize the game is a complex unity (Scaglia, 2011), so is also a system (Morin, 2013), which has many agents with inter-retroactivity in. Furthermore, they are systems by themselves (Bogdanov, 1996). Such agents relate themselves in complex ways, however, there may be a predominance of cooperative relationship or of resistance one, emerging, therefore, an organized or disorganized system, respectively (Bogdanov, 1996). If this resistance is made intentionally by opposite goals, means this is a competitive relation and when it is not intended means that happened a chaotic relation. Therefore, the meaning of organization has a process nature but a product nature, which is the system. Inside the strategy game of two teams, both try to arrange the goal in the actions ecology. Thereunto, happens the dialogue between order and disorder, that is, the known by the unknown. The more disorder in the course of action, higher will be the complexity level inherited the player's problem. Thus, it is possible to determinate a constant disorder level into the proposed game for

each player decision by change of the game structure what sets the SCG concept. With the aim of quantify this complexity, SCGI was created, described like this:

$$SCGI = [(Di/Ci) * (T*B)] * Cc \Rightarrow SCGI/DM$$

Di = Divergent intention = quantity of opponents

Ci = Convergent intention = quantity of partners

T = Targets = quantity of targets (what counts points)

B = Balls = quantity of balls (mediator object between players and their goals)

Cc = Chaotic constant = ALE+SAEI

ALE = Agentes of Larger Escale = Di+Ci

SAEI = Sum of Agents of Inferior Escale = 1

DM = Decision Making

Conclusions

According with the read literature, is possible to affirm that we have a coherent tool to measure the SCG. This tool is able to allow to sport educator an objective view about the proposed game's difficult into the player's perspective, enabling its manipulation too, as he or she considers it appropriate. Nevertheless, this tool should be improved with the scientific community' support.

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