

Outdoor activities and natural environment: a resilience metaphor bridging the human-natural interface

J. Dlouhá

Charles University Environment Center, Charles University in Prague

ABSTRACT

Sport is perceived as a source of harmony that contributes to a balance between the mental and physical elements of a human being, or as a continuous attempt to surpass the physical limits posed by the body. In the context of a more performance oriented approach some 'limits to growth' of individual performance could be defined that should not be exceeded without risk to human health. On the other hand, these limits are constantly shifting due to growing pool of experience and technical knowledge in the sports field. The aim of developing this know-how is to maintain a certain resilience – a 'capacity of a system to maintain and renew itself particularly in the presence of stressors'. The term acquires similar meaning in the field of medicine, psychology, ecology or the social and cultural sciences and could be used as a metaphor that enables the interrelation of these fields and the bridging of the gap in their practical applications. Based on the resilience concept, a better reflection of physical load and its proper management to enhance the positive experience of training is possible. As a metaphor it can also contribute to reducing the tension between the relationship between human beings and the environment. This dimension is an important aspect of outdoor education but has recently been neglected which has had a twofold impact: the changing nature of outdoor activities and environmental degradation as a result of this modified character.

KEY WORDS

sports, nature, environment, ecology, resilience, sport values, education, Olympic movement

INTRODUCTION

This article explores diverse perspectives from which sports are viewed: on a systemic level, they are mostly seen currently as part of a high performance-oriented economic sector where their attraction for potential spectators viewing media broadcasts is considered to be a success factor (Billings, 2011), as compared with the traditional educational perspective that values sport for its contribution to healthy life style, resistance and fitness of the organism, as well as more complex personal development and other important social phenomena that sport helps to form. (Neuman, 2011). The economic perspective and its contradictions have already been discussed many times without any definitive conclusion: success is part of the game and easily translated into economic terms – intrinsic values should then only be protected against some violation for profit. On an individual level, the Cartesian, mechanistic point of view perceives the human body as a mechanism that can be technologically 'improved', thus increasing its performance. In this context, the dualistic con-

cept of 'mind and body' and the dichotomy between mental and physical phenomena prevents a holistic understanding of the human being (Hunter and Csikszentmihalyi, 2000).

We will experiment with changes to these perspectives and develop an 'ecological point of view' that enables a holistic experience of the body and mind, and connects sports to its social context, especially to education and the values inherent within the social sphere. We should try to identify relationships between the human body and natural systems, identify various interconnections, their role and how we perceive them (from other perspectives) and derive a message or some form of wisdom that could potentially enrich these prevailing perspectives.

ECOLOGICAL PERSPECTIVE

From an ecological point of view, humans are organisms that have a close relationship to their environment: their growth and development is based on interactions with other organisms and the outside world, and are limited by their own capacities as well

as by the availability and quality of environmental resources.

In contrast to the above, the ecological perspective stresses the importance of interactions with the surrounding environment. The human body from this viewpoint is no longer an isolated entity that can be manipulated to achieve some desired state, but a kind of system that is interconnected with other systems and shares some of the processes that are under way within them. If a certain desired state can be achieved (in our case, a trained sportsman), it should not be described as a triumph over nature; some other metaphor should be used – triumphs of this kind are (from an ecological viewpoint) are devastating for natural systems, including the human body. We consider the ecological perspective useful because it is closely related to sustainability over time – it highlights limits (of the body and system) and shows what the possibilities are for the best management of it are to prevent some breakdown from overwork. In the case of sports, the ecological viewpoint shows that bodily limits represent boundaries that should be constantly challenged; this struggle supports the development of certain values on an individual level, and opens up a debate about either successfully overcoming them or failure to do so, and ways how to avoid these failures especially at the societal level. This perspective abandons the highly individualistic approach and takes into account important (environmental and social) factors that play a role in the development of a person and social structures; it also helps to view sports from more of a process (not outcome) point of view. It also supports a diversity of dialogue and the actors involved, and generates new associated narratives which appear within the context of this perspective. Environmental factors that influence an individual and his or her performance (for example, different types of interactions generated between sportspeople and the environment in which their sports occur) are discussed. As a result, environment is perceived as a shared responsibility in a situation where the ecological footprint or impact of sport activities on the environment is increasingly visible (cf. Horká, 2011).

Because life itself is understood metaphorically, through analogies and based on one's own experience (cf. Michálek, 2000), the ecological perspective offers different metaphors that are applied in different, ecologically relevant contexts – for example, an understanding of the Earth as a 'superorganism' is elaborated in the Gaia theory where the sensitivity of highly complex systems and their relationships is essential to ensuring the conditions of life (Lo-

velock, 1994). The human body is often considered to be part of the planetary ecosystem that ensures energy and material flows, as well as the necessary environment (homeostasis and related health conditions, aesthetical conditions – cf. (Millenium Ecosystem Assessment, 2005)). From the point of view of ecodynamics (Goldsmith, 1978), living things seek to 'preserve their structure, ... survive and flourish through spontaneous, adaptive self-regulation' – life systems are thus substantially different from the non-living world and its laws of thermodynamics. The ecological perspective operates especially in outdoor education where the Biophilia hypothesis (Wilson and Kellert, 1993) or Psycho-evolutionary theory (Neill et al., 2004) are sometimes applied. According to the latter, outdoor education is a 'form of ritualistic or compensatory cultural adaptation to deal with the recent, rapid divorcing of nature from daily life'.

LIMITS TO INDIVIDUAL GROWTH AND DEVELOPMENT

One of the most influential metaphors applied in the context of the environmental or sustainability discourse is limits to growth. A study with this name was published under the auspices of the Club of Rome in 1972 and concentrated on economic and population growth in a world of finite resources (cf. Meadows, D.H. et al., 1972). But the limits metaphor is also applicable elsewhere in relation to various types of human or social development: for example, at the level of the human body, increasing its (physical, mental) potential would collide at a certain point with boundaries that limit further growth and depend on external as well as the internal resources and capacities of the body. These limits consequently represent a challenge that is dealt with differently in different areas of human activities – specifically in sports where training is appropriate strategy to modify them. They represent here an important impetus for personal development around which sports values are concentrated, and thus they are a factor in sports education where personal growth is emphasised.

From the ecological perspective, the struggle to extend personal limits should contribute to individual welfare (developing fitness, immunity etc.) and support social welfare through opening up a dialogue with different actors on the necessary resources (material, aesthetic, psychological etc.) and especially the results of personal growth. Sports values are also extensively discussed within other (non-ecological) viewpoints, especially in education, and

they are highly relevant for the Olympic movement's mission, which is to preserve a certain tradition. It should be noted here that this is not self-evident as the Olympic movement has recently faced an 'increasing separation between high performance sport and the interests of the population as a whole' which is leading to 'a marginalization of organized sport as a social phenomenon in which the public participates at its own level' (Pound, 2008). Personal limits are also dealt with from a purely performance-oriented perspective and they represent a driving force for technological progress, the development of new sports sectors, and also play an important role in the public perception of sports – but very often prohibited interventions such as use of drugs also play a role here.

THE ROLE OF DIFFERENT APPROACHES IN DEALING WITH PERSONAL LIMITS

Obviously different approaches also differ in the ways how personal limits should be managed. Where the major question is about sports performance – in an outcome oriented approach – management concentrates on artificial intervention (technology, and even drugs) in situations where potential for growth has already been reached, and its success is reflected mechanistically (upgrading the body without paying attention to its social context, interactions etc.). In the educational sphere, attention is paid to progress on an individual level and its benefits to sport as a value-and-practice system. Attention is also paid to the health and well-being of the body and in this regard the ecological viewpoint is often promoted – regeneration of human capacities is stressed (Dohnal, 2010) and the link between the state of the natural environment and the general physical, mental and social welfare of a person has been confirmed by research (Horká, 2011). For educational purposes, learning environments play an important role, especially if they are challenging: obstacles are an inevitable part of the development process (Franklin, 2012).

Different perspectives are also important for the type of questions that are posed with regard to desired (sports) outcomes, and for the ways these questions are answered. What are the possibilities for overcoming limits to growth? What is – in this regard – being developed most dynamically? And finally, how successful have such developments been, in which respect (what did it deliver) and what are the indicators through which these deliverables are perceived or assessed? These questions could be analysed through the narratives that are characteri-

stic of the outlined approaches – relevant to success, technical progress, the wellbeing of an individual and society, or a value system and other educational goals etc.

For example, from the educational perspective, increasing human capacities are stressed together with resulting values, and the questions and narratives associated with such growth are specific. How do people change as a result of sport? What impact on their life does sport have? From this perspective, an analysis of failure is important – e.g. the reasons for not succeeding on a personal, institutional or systemic level, attention to the life cycle of the sportspeople, and other possible examples of unanticipated outcomes. What is important is what the sportspeople themselves say and how they perceive their situation.

METHOD – RESILIENCE METAPHOR

Paradigms in ecology change over time. While in the mid-19th century the central concept in this science was that of an ideal natural equilibrium where any disturbance damages natural systems, from the 1990s the paradigm of a new, unstable ecology is gradually being developed. Within this new framework, ecosystems are considered to be open, unbalanced systems where an equilibrium exists but often not from a long-term perspective and is not pre-defined (there is no desirable 'stable' ecosystem state). Disturbances are common components of natural processes and ecosystems are even dependent upon them. While in the first paradigm, the resistance of the ecosystem is most important to preserve its stability, the second paradigm counts on the resilience that permits an ecosystem's structure to be maintained after disturbances that upset its equilibrium (cf. Plesník, 2012). If we consider the human being as a 'natural system' interacting with its surroundings, being part of it, sharing some of the processes etc., then overcoming personal limits might be dealt with as facing up to such a disturbance and taking adaptive measures with the aim of preserving its resilience, i.e. new and unbalanced stability. This metaphor is also useful for sports where harmony of human the body is attained through a series of unbalanced states (the training load) that are absorbed by the body.

DEFINITION

Resilience, however, has been defined in a range of contexts (describes elasticity of materials, is applied in computer networking, in psychology, ecology, management etc.).

On a general systemic level, it is defined as: 'Resi-

lience provides the capacity to absorb shocks while maintaining function. When change occurs, resilience provides the components for renewal and reorganisation. Vulnerability is the flip side of resilience: when a social or ecological system loses resilience it becomes vulnerable to change that previously could be absorbed. In a resilient system, change has the potential to create opportunity for development, novelty and innovation. In a vulnerable system even small changes may be devastating.' (Folke et al., 2002)

The Resilience Alliance (which is also a highly interdisciplinary organization with the aim of exploring the dynamics of social-ecological systems www.resalliance.org) defines resilience – a concept applied to the integrated systems of people and nature – as: (a) the amount of disturbance a system can absorb and still remain within the same state or domain of attraction (b) the degree to which the system is capable of self-organization (versus a lack of organization, or organization forced by external factors) and c) the degree to which the system can build and increase the capacity for learning and adaptation (Carpenter et al., 2001).

In psychology, resilience is considered to be 'an individual's ability to generate biological, psychological and social factors to resist, adapt and strengthen himself when faced with an environment of risk, generating individual, social and moral success.' It could be described (on the individual level from a psychological point of view) with regards to:

- Good outcomes despite high-risk status,
- Steady competence under stress,
- Recovery from trauma,
- Using challenges for growth that make future hardships more tolerable.

The opposite of resilience is often defined as vulnerability. Vulnerability refers to the propensity of a social and ecological system to suffer harm from exposure to external stresses and shocks. It involves exposure to events and stresses, sensitivity to such exposures (which may result in adverse effects and consequences), and resilience owing to adaptive measures to anticipate and reduce future harm. The coping capacity is important, at all stages, to alter these major dimensions.

APPLICATION OF THE RESILIENCE METAPHOR

By providing insight into the 'limits of growth' both within the human organism and its surrounding environment, the resilience metaphor might help to incorporate the ecological viewpoint within the sports discourse; it may thus also highlight the risks

and benefits of sport activities for all 'actors' involved (sportsmen and the environment).

The concept of resilience is relevant for systems thinking and applicable to different types of systems; it is well understood within different discourses and thus could serve as a 'boundary object' for developing dialogue and mutual understanding (cf. Star and Griesemer, 1989; Carlile, 2004). In the context of sports, it can bridge different perspectives from which sports are viewed (economic, educational, and ecological) while recognizing the important role of environment and relationships developed within it. However, there are some differences within these relationships: within the 'performance perspective', there are no limits perceived from the outside, and the impact on the environment is also believed to be unimportant – resilience is not considered although on the other hand it manifests itself in failure. From the educational point of view, resilience might play a role in understanding the limits of the body and support the development of methods to extend them. The ecological viewpoint then bridges the gap between environmental and human concerns and demonstrates their mutual interdependence. In this regard, sports should no longer be considered an individualistic exercise – environmental and social factors have to play their role as well.

EDUCATION AND OUTDOOR SPORTS

Thinking about personal limits leads to thinking about "self" (at a certain level of reflexivity); challenging personal limits leads to learning and transformation (personal development as a 'journey' with a relatively unpredictable goal). An experiential method of learning by doing, where the emphasis is placed on relationships concerning human and natural resources, is achieved in outdoor education. In this type of education, people are engaged in adventurous activities, and they experience the environment directly and use its resources as learning materials. In general, outdoor education supports awareness of and fosters respect for (Nicol, 2002).

- a. Self — through the meeting of challenges (adventure)
- b. Others — through group experiences and the sharing of decisions
- c. The natural environment, through direct experience.

It highlights nature as an important factor and is actually one of the 'actors' that play a role in sporting endeavours – and reveals that sports activities capitalize on ecosystem services, especially the cultural factor – aesthetic, spiritual, educational, recreatio-

nal etc. potential (cf. Millennium Ecosystem Assessment, 2005).

CONSEQUENCES – NEW RESEARCH QUESTIONS

A consistent application of the resilience metaphor would shift attention from raising individual performance to increasing an individual's resilience – which is relevant not only to desired 'better outcomes under constantly improving conditions', but also personal wellbeing. If this transition occurs, the questions posed by sports managers will change – they will no longer concentrate on personal limits and methods to overcome them, but on the sources of the resilience and ways to support them. When resilience of the body is considered, factors that play a role in strengthening it might also be considered a.o. the natural environment. One of the crucial issues would be how to enhance and assess the positive influence of nature on the human being, and reduce the negative influence of humans on nature – one's **RELATION TO** the natural environment should be promoted while the **IMPACT ON** it should be penalized in sports activities. Psychology and physiology would be then engaged on the individual level in resilience building and stress management. Maybe other new perspectives will also open up. The resilience concept in sports also means that attention should be paid not only to success stories but also failures; the voices of sportsmen should be listened to more often. (Sports sociology should play a role here).

CONCLUSION

Sporting discourse is developing around certain narratives. The deliberations thereof could provide insight into prevailing paradigms and also contribute to a change in these dominant ideologies should the continuation of current trends in sports development become unsustainable and lead up a blind alley. Prevailing practices are efficient, economically feasible, and appear to be widely acceptable but simultaneously appear to be more vulnerable. Established ideologies make it difficult to develop a real and democratic dialogue between the different stakeholders or actors that play a role in or around sports: not only sportsmen and sport managers, but especially (outdoor) educators, environmental conservationists, the general public and society. Some of these actors have conflicting views (they do not support the prevailing paradigm) and therefore it is difficult to achieve a holistic perspective desirable not only in education (where a comprehensive set of skills and values should be delivered) but also in the

Olympic movement, at a strategic policy level etc. The construction of boundary objects that bridge two opposing views might help to improve understanding between different viewpoints and narratives. In our article, we constructed such a boundary object by applying the following method:

(a) a change of perspective. Although sports are often dealt with from an economic point of view (as a symbol of success that could easily be translated into economic terms) or are considered to be a part of the education system (relevant for the development of the psychomotor domain where important skills are developed and related values built), we attempted to look at sports processes from an ecological perspective.

(b) selecting a relevant metaphor that might also work as a part of other perspectives and provide interesting insight concerning in our case the physical development, its limits, and the challenges that should be overcome through sports training, and consequent changes in personal characteristics – the resilience metaphor. Such a metaphor represents a boundary object that could be discussed by representatives of these diverse discourses: educators as well as sports managers.

(c) using this metaphor in different contexts for an analysis thereof, i.e. for broadening understanding of personal limits and possible ways of how to extend them and avoid failures. These considerations provide insight into sports challenges, their management, and the resulting changes in value systems. For example, the resilience metaphor is applied to underline the interests of the individual within the performance oriented discourse.

(d) drafting possible research questions that are an outcome of such considerations – they outline new research themes that could contribute to a shared, publicly acceptable, and sustainable concept of sports management from an environmental point of view.

Posing the correct research questions is an important part of the research itself, and not only that: whenever any transition or paradigm change is foreseen, different types of questions suddenly appear. In order to preserve sport with all its universal values in a contemporary world where economic imperatives seem to be the guiding principles for any action, these innovative questions might foster discussion on new topics that could potentially bring about desired change. In our case, the environment is an opportunity to change the perspective.

Acknowledgments: This article was written with the support of PRVOUK, a Charles University research program.

REFERENCES

1. Billings, A.C. (ed.) (2011). *Sports Media. Transformation, Integration, Consumption*. New York, Routledge, Taylor and Francis.
2. Carlile, P. R., (2004). Transferring, Translating, and Transforming: An Integrative Framework for Managing Knowledge across Boundaries. *Organization Science*, 15, 555-568.
3. Carpenter, S., B. Walker, J. M. Anderies, and N. Abel. (2001). From metaphor to measurement: Resilience of what to what? *Ecosystems* 4:765-781
4. Dohnal, T. (2010). Systémový přístup k rekreologii. *Tělesná kultura*, 33(2), 7–29.
5. Folke, C., Carpenter, S., Elmqvist, T., Gunderson, L., Holling, C. S., & Walker, B. (2002). Resilience and sustainable development: building adaptive capacity in a world of transformations. *AMBIO: A Journal of the Human Environment*, 31(5), 437–440.
6. Franklin, B. (2012). Developing and maintaining mental toughness. *Mental Toughness: The Mindset Behind Sporting Achievement*, 91.
7. Goldsmith, E. (1978). *The Stable Society*. Wadebridge Press. Available from <http://www.edwardgoldsmith.org/books/the-stable-society/>
8. Horká, H. (2011). Health Education in the Environmental Context. In: Řehulka, E; Sollárová E.(ed.) *Health Education: Czech-Slovak Experience*, Brno : Masarykova univerzita. ISBN 978 -80 -210 -5723, pp. 7–20.
9. Hunter, J., & Csikszentmihalyi, M. (2000). The Phenomenology of Body-Mind: The Contrasting Cases of Flow in Sports and Contemplation. *Anthropology of Consciousness*, 11(3-4), 5–24.
10. Donella H. Meadows, Gary. Meadows, Jorgen Randers, and William W. Behrens III. (1972).
11. *The Limits to Growth*. New York: Universe Books. ISBN 0-87663-165-0
12. Millennium Ecosystem Assessment, 2005. Current State and Trends. In: *Ecosystems and Human Well-being*, vol. 1. Island Press, Washington.
13. Lovelock, J. E. (1994). *Gaia : živoucí planeta*. Praha : Mladá fronta (Kolumbus). ISBN 80-204-0436-8
14. Plesník, J. (2012). Přínos ekosystémové ekologie pro biologii ochany přírody. In: Machar, I., Drobilová, L. et al. (eds.) *Ochrana přírody a krajiny v České republice*. Olomouc: UP v Olomouci, 2012.
15. Michálek, J. (2000). *Corpus organicum*. Praha : OIKOYMENH. ISBN 80-7298-021-1.
16. Neill, J., Gray, T., Ellis-Smith, G., Bocarro, J., Sierra, R., & Kaushal. (2004). 2nd International Outdoor Education Conference, Bendigo, Australia, July 6-9. Available from <http://www.wilderdom.com/psycho-evolutionary/>
17. Neuman, J. (2011). Současné problémy oblasti zvané “outdoor”. *OUTDOOR 2011*, 6.
18. Nicol, R. (2002). Outdoor education: Research topic or universal value? Part two. *Journal of Adventure Education & Outdoor Learning*, 2(2), 85–99.
19. Pound, R. (2008). The Future of the Olympic Movement: Promised Land or Train Wreck? *Pathways: Critiques and Discourse in Olympic Research*, 1–19.
20. Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, ‘translations’ and boundary objects: Amateurs and professionals in Berkeley’s Museum of Vertebrate Zoology, 1907-39. *Social studies of science*, 19(3), 387–420.
21. Wilson, E. O., & Kellert, S. R. (1993). *The biophilia hypothesis*. Washington DC: Island.