Talent Development: From Possessing Gifts, to Functional Environmental Interactions
Duarte Araújo1 and Keith Davids2

Gagné (2011) suggests that talent development should be based on merit, proposing that, if gifted programs followed his theoretical model (Differentiated Model of Giftedness and Talent – DMGT), academic practices would be much more principled. Although these ideas seem acceptable for development of gifted programs, the DMGT model is biased towards the individual, based on assumptions that gifts and talents are entities to be acquired or possessed by individuals.

This bias reflects traditional assumptions that talent development involves the establishment and enrichment of internal traits that incur relatively permanent changes in an individual’s capabilities (e.g., Gagné, 2009). According to this view, the aim of practice is to increase the “strength” of relevant characteristics possessed by an individual, with research needed on understanding “what” has been acquired to change an individual’s internal state (e.g., Ericsson, Nandagopal, & Roring, 2009), or what transformations have occurred to internal entities (Gagné, 2009).

Enrichment theories propose that skilled individuals can be differentiated from unskilled by specific traits physically acquired during learning. Accordingly, knowledge and skill are viewed as a kind of substance possessed by gifted individuals. Learning results in the acquisition of an enhanced state, or increased amounts of knowledge in memory (Gibson & Pick, 2000).

It has been argued (e.g., Dunwoody, 2006; Davids & Araújo, 2010) that traditional behavioral science, with its emphasis on acquisition of enriched internal states, has developed an organismic asymmetry in its approach to understanding human behavior, neglecting the role of environmental constraints. This biased theoretical stance is founded on separation of the performer from the performance context, logically detaching content from context, and abilities from situations in which one expresses expertise (Turvey & Shaw, 1995).

Gagné's model displays an inherent organismic asymmetry in attempting to explain giftedness and talent, because he purports to have identified constructs inside individuals that distinguish talentees (gifts, talents) from those without talent. This dualistic view encourages conceptual divisions that lead to intractable problems which become apparent with questions about how these entities become connected (Turvey & Shaw, 1995). For example, how are natural abilities (gifts) and competencies (talents), possessed by an organism derived from situated experiences with specific socio-cultural and physical influences?

A Symmetric View of Talent Development

A more symmetric view of human behavior is provided by ecological psychology which prompts the question: what adaptive purposes underlie human performance and its development? (see Gibson & Pick, 2000). Ecological psychology focuses on individual adaptability in evolutionary functional contexts. From this perspective, talentees are not an

1 Technical University of Lisbon; Portugal
2 Faculty of Human Kinetics, Technical University of Lisbon, Estrada da Costa, 1495-688 Cruz Quebrada, Portugal. E-mail: daraudio@fmh.ult.pt
3 Queensland University of Technology, Australia
agglomerate of gifts and talents, but active individuals engaged in ongoing dynamical transactions with their functionally defined environments. Talent is not a possession acquired by an individual, nor a fixed property of a performer, but rather a dynamically varying relationship captured by the constraints imposed by the environment and the resources of a performer (Araújo & Davids, in press). Consequently, the individual-environment system is the minimal ontology for describing talent and its development.

Although Gagné's model mentions the environment, he does not explicitly explain how environment-individual interactions occur. In his model, gifts and talents are conceptualized as components of an individual, with allusions to context as a catalyst independent of the element to be catalyzed, or simply referenced as the application location of an acquired talent, not its ontological existence. To put it simply, the tasks in which gifts and talents are expressed are excluded from the explanation. Much of the ensuing discussion on the DMGT model, the "talent development process" and influence of the environment, concerns how context enriches performers' abilities. This bias contrasts with the explanation that individuals and contexts co-determine each other through ecological practice (Barab & Plucker, 2002). Both individual and environment (physical or social) have the potential to be impacted and transformed by these interactions. Gagné's model does not address important questions for talent development such as: What connections exist between properties of a specific performance context and a given talent, for specific achievement? How does performance derive from, rather than merely correlate with, a specific set of talents?

In ecological psychology an individual's talentedness can be explained without postulating internal acquisitions. This approach emphasizes understanding of the transaction between affordances (opportunities for action) and how performers become attuned to perceive key variables that specify goal achievement (Davids & Araújo, 2010). Affordance perception allows performers to regulate behavior prospectively. An affordance is a disposition of the surrounding environment whereas an effectivity is a complementing disposition of an individual. An effectivity allows an individual to bring about a functional environmental change (Turvey & Shaw, 1995). Through exploratory actions in specific contexts, perceptual systems become progressively better attuned to invariants in the environment (Vicente & Wang, 1998). The variables picked up become more subtle, elaborate, and precise with task-specific experience and are successfully coupled to actions (Jacobs & Michaels, 2007). Talented performance, therefore, derives from an increasingly functional fit of an individual and a performance environment. Ecological learning theories emphasize how talented performers exploit the informational richness of environmental properties (Jacobs & Michaels, 2007; Gibson & Pick, 2000; Vicente & Wang, 1998).

Successful talent development results in emergence of adaptive behaviors for use in a range of performance contexts. Adaptive behavior is an important characteristic of talent because constraints of the environment, task requirements, and an individual's intentions and motivations alter continuously. Adaptive behavior, rather than being imposed by a pre-existing structure, emerges from this confluence of constraints under the boundary conditions of a specific task or activity context (Araújo & Davids, in press). A major challenge in expertise research is to understand how each individual uniquely adapts their behaviors in complex environments to consistently achieve specific task outcomes (see Phillips, Davids, Renshaw, & Portus, 2010, for an example in sport).

What makes one individual's behavior more talented than another is not some possessed ability, but its contextualized functional value: its usefulness in particular performance contexts. The development of talent involves becoming better able to engage in interactions embedded in subsequent achievement experiences, and not treating the performer as an object to be changed.
References


The Authors

Duarte Araújo (born 1971) is Associate Professor in the Faculty of Human Kinetics at the Technical University of Lisbon in Portugal, where he is the director of the Laboratory of Expertise in Sports. His research involves the study of expertise, decision-making, and action in sport. He is an Editorial Board Member for the International Journal of Sport Psychology.

Keith Davids is Professor and Head of Human Movement Studies at Queensland University of Technology, Australia. His research interests include the theoretical frameworks of ecological psychology and dynamical systems theory applied to the study of neurobiological cognition and action. A particular interest concerns the role of constraints in motor learning and the implications for the acquisition of movement coordination.