

Original Article

Expertise in sport and physical education: review through essential factors

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Abstract

The paradigm "expert-novice" is not new, Siedentop (1999) and Berliner (1986) pored over this problem by producing a line of research on factors differentiating the two concepts. Baker *et al* (2003), consider the development of expertise in sport as a result of successful interaction of biological, psychological and sociological constraints. Siedentop (1999) describes the research paradigm of this second line of differentiation grouped into four categories, the form of planning, teaching methods, behavior in the classroom and in the making decisions. That it is evident, although factors such as years of teaching and individual formation could be essential for the development of skills characteristic of the experience. The purpose of this paper is to examine the key factors for the development of expertise in Physical Education and Sport, although this is not an exhaustive review of the literature.

Key-words: Expertise, physical education, training, teacher, coach.

Defining expertise

We don't have a general consensus in the scientific community regarding the operational definition of expertise. The expertise definition underlies at the expert definition, where it is assumed that expert is a person who is very knowledgeable about or skillful in a particular area (Oxford Dictionary, 2011). The expertise may be understood as specialization in a particular field or area where the subject possesses the mastery of skills or knowledge, including how and why to do. Freidson (1998, pp 200; *cit in* Verenguer, 2004) leads us to an objective definition of quality in observation of the subject experienced. In this conception, expertise is characterized by performing tasks from the knowledge and skills of people who are experts (...), or tasks that require extensive training or experience, or both, and in this case, the filmmakers are true experts with competence and knowledge, that is, with expertise - that is distinctly theirs and not a part of normal competence of adults in general." The notion of expert represents an important way to investigate and determine, is not conducive, easy and unequivocal. Although the concepts are not unanimous, a predominance of cognitive systems or in the prevalence of expertise as a fruit of performance (Siedentop & Eldar, 1989), the research community could agree that expert teachers "have clearly held beliefs and values about the goals of their work and clearly defined and successful strategies to achieve those goals in their specific contexts" (O' Sullivan & Doutis, 1994).

Expertise in teaching

The act of teaching itself is complex, the experience may be influenced by many factors. For the game of chess expertise is defined as the next best move, however, physical education can be understood through different meanings vary from person to person. The answers can be varied because we don't have a consensus, a single definition of what the best path or best action to take as a starting point. Lampert and Clark (1990), they faced the same dilemma. In the view of the expertise of experienced teachers of mathematics, a line of research argues that the experienced teachers of mathematics solve more problems with their students. Another line of research that identifies the experienced teachers of mathematics solve only one problem per class (Stevenson, Lee & Stigler, 1986, *cit in* O' Sullivan & Doutis, 1994). Do not exist a consensus, the characteristics can be seen in a context and not in another one, because they are not standardized. Thus, overlaps that we should focus on the essential teaching, what is actually achieved or stimulate. Ericsson & Smith (1991, *cit in* O' Sullivan & Doutis, 1994) said that "if we cannot captivate the essence of teaching, we may not have a legitimate phenomenon to study."

Then, what's the expertise? What defines it? Which are their characteristics? Really exist?

Expert teachers are seen as having an enormous expertise in a particular area, deep knowledge of a field, being innate in a familiar environment. O'Sullivan & Doutis (1994), extending the view that the specialist teacher is not just one that holds knowledge academically recognized, but rather, a subject which encompasses and applies his knowledge in the social, political and moral. This definition of the term designates virtuoso, being a more technical term, innovative and qualitatively impersonator skills inherent to become a specialist. Reconfiguring this definition to the field of physical education, teachers are seen as experts, professionals with sophisticated knowledge of their subject matter demonstrate that in their culturally relevant physical education programs and

socially responsible teaching knowledge and sensitivity to the uniqueness of their learners and their cultural contexts. Rink (1993) described five conceptual orientations in teacher education and adapted them for physical education. In first we have the academic orientation preceded by the practical, technological, personal and critical/social orientations. Rink (1993:316) said that “teacher education is likely to be a process that is continuously pulled from an emphasis on one of these components to another”.

Kennedy (1987; *cit in O’ Sullivan & Doutis, 1994*), suggested four different views of expertise in distinct professional areas, law, medicine, engineering and education. The first view indicates the expertise as technical skill has a long history in education. Second, has an application of theory or general principles with frequent presence in educational, engineering and medical programs. In third, the law programs have one important focus in critical analysis in detriment of the others. At last, in fourth view, Kennedy does not see the expertise as an incidence of a professional domain. Each definition, according to Kennedy, entails assumptions about the nature of professional practice and has specific implications for professional practice in these fields.

Research of expertise in teaching

Much of research on expertise have focused on areas such as education, chess (Simon & Chase, 1973, *cit in O’ Sullivan & Doutis, 1994*), physics (Anzai & Yokoyama, 1984; Clement, 1982; White, 1983; *cit in O’ Sullivan & Doutis, 1994*), music (Chase & Ericsson, 1981, *cit in O’ Sullivan & Doutis, 1994*), motor skill expertise of ballet dancers (Starkes, Deakin, Lingley & Crisp, 1987; *cit in O’ Sullivan & Doutis, 1994*) and figure skaters (Deakin, 1987; *cit in O’ Sullivan & Doutis, 1994*).

According Ericsson and Smith (1991, *cit in O’ Sullivan & Doutis, 1994*), the major objective of research on expertise, “has attempted to understand and account for what distinguishes outstanding individuals in a domain from less outstanding individuals in that domain as well as from people in general” by attempting to delineate the stable characteristics (inherited or acquired) of experts under different conditions. They concluded that expertise is acquired rather than inherited, are domain specific, and take a long time to acquire.

It’s been taken many ways to demonstrate the expert teacher knowledge. Various techniques were used, just like observations of task performance, hierarchical clustering, ordered trees (Olson & Biolsi, 1991; Lynn, French, Rink, Lee & Solmon, 1990), semantic maps to measure teacher’s and teacher educator’s cognitive schemata (Housner, Gomez & Griffey, 1993). Dodds (1994; *cit in O’ Sullivan & Doutis, 1994*) suggests using the concepts adjacent to the cognitive psychology. All this work emerged the need to use key descriptors as a essential elements in the synthesis of cognitive schemata of experienced teachers. But Lampert and Clark (1990:21) did not follow thought in the same direction stating that, “first, schemata may not be the almost appropriate way to represent knowledge that expert teachers actually use in practice. Second, knowledge about expert teacher’s schemata, acquired by novices in expert academic settings like university courses might not be transportable to the situations in which they face practical problems”. In the same view, Welker (1991; *cit in O’ Sullivan & Doutis, 1994*), has been quite critical about inherent limitation of the concept of expertise, because the concept encompasses the expertise to a singular dimensional quality of technical skills and diminishes the fundamental responsibilities of the teachers in moral and social domains.

Differences between expert and novice teachers

Griffey & Podemski (1990), in physical education, reflected and listed several characteristics to describe the work of a physical educator. The physical educator is a technician, theoretician, reflective practitioner, therapist, decision maker and researcher. If the teacher education program focuses in one different view the content, experiences or evaluation criteria could be different. Refers importance to the initial formation congruently interconnected with a consistent curricular program.

In the pedagogy of the physical and sport activities the relevance in research to differentiate experts to novice teachers was presented by Piéron (1999:27). The essential factors that distinguish expert and novice teachers are the matter planning, teaching posture, behavior in the classroom and in making decision. Berliner (1986) summarizes the expert notion covering other areas. So, the expert teacher makes its inferences from objects or events being that beginners are limited to a more literal vision of those components. Classify the problems that must be resolved in a relatively high level and the novice classify in a superficial level. Use precise and rapid patterns in recognition capacity. Builds representations of different issues, something the novice doesn’t do. Seems have metacognitive abilities and self-regulation higher. The expert builds its competence gradually over a long period of time and an important practice. With this research methodology becomes difficult the differentiation of the expert and novice. The selection criteria, according Piéron (1999) are, the identification by the pedagogical authorities (inspectors, advisers or school directors), the recognition by the university pedagogues and the responsible for the practical component in the teacher education formation and, at last, who focus in the continued formation of their colleagues, in collaboration with the universities, the curriculum responsible and the physical education teachers association. Siedentop & Eldar (1989) suggested one notion of expert focused in behavior domain. The expert notion in this synthesizing are a process control of stimuli that indicates that the experts see things that others do not and are able to make discriminations that are more sensitive; a faster response to stimuli identified; have a repertoire of behavior much broader that lets you fine-tune their responses to certain specific situation and is able to control a larger number of elements between the stimuli identified before producing its response. Berliner (1988; *cit in Piéron, 1999*), presents the expert motion in five phases for the recognition of the teachers in their evolution progress to achieve the expert level.

The first phase is the novice teacher (student and first teaching year), second phase is the novice advanced teacher (second or third teaching year), third phase is the competent teacher (third or fourth year teaching and some experimented teachers), fourth phase is the effective teacher (someone with more than five years teaching and other more experimented teachers), and finally the expert teacher (only available to some teachers). In sequence of that interpretation, some views appeared, Januário (1992; *cit in* Piéron, 1999) founded that the expert teachers in the class management, enjoyed much better the scheduled time than novice teachers. Other thing is that expert teachers differs the novice in the task presentation.

Sport expertise

In sport, the expertise is considered by sorting influencing of biological, psychological and sociological constraints. Baker *et al.* (2003), refer that “in the training factors is not surprising that high levels of training or practice are required to attain expertise”. The research in this area, with specialization on skill development supports the connection between training/practice and skill acquisition. That sustentation might include the “10-year-rule (Simon and Chase, 1973; *cit in* Baker *et al.*, 2003) and the power law of practice (Newell & Rosenbloom, 1981; *cit in* Baker *et al.*, 2003). As well the information on physical education, Simon & Chase (1973), indicated that differences between expert level players and lesser skilled players were attributable to the ability to organize the information in more meaningful particles rather than the possession of a superior memory capacity. Janelle (1999) summarized the characteristics of expertise in sport, refer that experts have greater task-specific knowledge, interpret greater meaning from available information, store and access information effectively, can better detect and recognize structured patterns of play, use situational probability data better, make decisions that are more rapid and more appropriate.

Conclusions

We founded some characteristics between physical education and sport expertise. We must be careful because the mobilization of different knowledge in different contexts produced different responses. In general, we could say that the practice is one important component to reach the expertise – superior level. In the segment of this conceptualization, the physical education teacher must have in contact many hours with his professional context. He must be a professional with a pedagogical knowledge to response at the different stimuli issued by the students with their specific necessities and individualities. The development of the curriculum area and time of contact with the classroom could be the way to reach expertise. In future, the research should focus in the limit of the term “expertise”, almost time explained by the cognitive processes, which in turn, focuses exclusively on the notion of teaching as an academic enterprise. Future research needs to continue investigate the development of pedagogical expertise from a longitudinal perspective. Investigations are particularly interested on the topic of teacher’s observations and interpretations of classroom and appropriates of those observations. They need to explore the intrinsic/extrinsic process factors that permitted advance in development of expertise with professionals and students point of view.

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