

The Promise of a Holistic Ecological Approach to Study Badminton Talent Development in Indonesia

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Abstract—the current research in talent development using the holistic ecological approach highlights the vital role of the environment. Theoretically, athletic talent development's environment contributes to the success of youth athletes' transition to elite senior levels. The international achievement of Indonesian badminton seems to be inviting for investigation as it fulfills the criteria of successful talent development environment. Unfortunately, little is known about badminton's talent development environment in Indonesia. The existing research tended to focus on individual athletes and underestimated the environment as an important factor. This paper aims to review literature in talent development in sport concept and research from the holistic ecological perspective. The review would provide solid theoretical information served as the theoretical and methodological basis for research in talent development environment, particularly regarding badminton in Indonesia.

Keywords—ATDE, badminton, holistic ecological perspective

I. INTRODUCTION

The role of environment in athletic talent development has been considered an important factor. The proximity to talent clubs is an important predictor in the development of expertise in sports [1]. Elite football clubs facilitated a talent development environment to provide their academy players with tools and resources needed inside and outside the field [2]. The environment centered on the relationship between prospective athletes and a community of more elite athletes which helped them to focus on their goals [3]. In addition, the environment which facilitated relationship between young players to staff of coaches, assistants and managers, helped the players in handling dual careers as athletes and students [4]. Important psychosocial skills are practiced/ incorporated into the culture and became part of the shared articulated discourse in the environment [5].

A successful talent development environment is characterized by a successful record of producing elite senior athletes. There are at least two key indicators of this criteria. Firstly, the elite athletes which are produced by the environment must compete at higher international level. Secondly, a large number of prospective youth should make a successful transition to senior elite level [6]. The achievement of Indonesian badminton in international stage has fulfilled this criteria. Indonesia's recent gold medal in the Olympic Games was from badminton as Tontowi Ahmad/Liliyana Natsir won the mixed doubles final in Rio de Janeiro 2016. Indonesian players were at the top table of men's doubles and

mixed doubles category in Badminton World Federation (BWF) World Rankings Week 28 updated on 12 July 2018.

Even though Indonesian badminton talent development has gained success in international stage, research addressing this topic is limited. What seems to be well documented in the literature about badminton in Indonesia includes some aspects such as the effects of training method towards badminton skills [7, 8, 9], the development of badminton skill learning [10, 11] and physical test for badminton talent identification [12]. In general, the research on sport talent in Indonesia tended to focus on the individual athlete and underestimated the environment as an important factor.

This paper intended to review literature in sport talent development theory and research from the holistic ecological perspective. It started with discussion about the central debate of talent concept and its implication to the study of talent development in sport. The theoretical basis and the working model of holistic ecological perspective will be discussed after that. Lastly, the international achievement of Indonesian badminton will be discussed to justify the promise of using holistic ecological approach to study talent development, particularly regarding badminton.

II. THE NATURE/NURTURE DEBATE AND ITS IMPLICATION TO SPORT TALENT IDENTIFICATION AND DEVELOPMENT

The central discussions about talent have been generally embedded within nature versus nurture debate. This debate continues to determine whether talent is the result of raw material (genes) or environmental influence [13]. The current major thesis developed is that environment affects work through the process of development and interacts with an individual's genetic background to produce a specific phenotype that determines the variance in human athletic ability. Talented athletes are clearly a collection of many complex traits and so the athletic phenotype must arise from combination of genes and environmental exposures [14]. The implication of this debate is seen on the distinction between talent identification and development concept.

The concept of talent identification is derived from 'nativists'. They believe that talent is innate and the environment plays minimal role in its development. This perspective supports the concept that key determinants of sporting can be identified early on while the proponents of the 'nurture', view sport performance as a result of deliberate quality practices. They emphasize on talent development even though they still acknowledge the existence of innate

potential. When the nature or nurture viewpoints have tended to polarize, the ‘Darwinian’ approach came up with the perspective to acknowledge the contribution of both genes and the environment [15].

Reference [6] reflects an interactionist standpoint in the nature/nurture debate when it suggested the definition of athletic talent as “a set of characteristics, competencies and skills developed based on innate potential and multiyear practice, competition and interactions with the environment. This definition has a number of implications. First, it emphasizes that athletic talent consists of innate potential developed in training. Second, it states that athletic talent shows itself in a high level performance. Finally, it stresses that innate potential is only realized through a deliberate process. This standpoint no longer sees talent identification and development as two opposite perspectives. The jargon nature versus nurture then changed to nature via nurture. This progression on nature/nurture debate leads to the development of holistic ecological approach to study sport talent development.

III. THE HOLISTIC ECOLOGICAL PERSPECTIVE

The holistic ecological perspective developed from Bronfenbrenner’s ecology of human development theory. It includes scientific study of the progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate settings in which the developing person lives. To give a conceptual model of the ecology of human development, as this process is affected by relations between these settings, and by the larger contexts in which the settings are embedded, Bronfenbrenner introduced a concentric structure consisting of micro, meso, exo and macro system. The microsystem includes activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular characteristics. A mesosystem comprises the interrelations among two or more settings in which the developing person actively participates, whereas an exosystem refers to settings that do not involve the developing person as an active participant. Lastly, the macrosystem describes the culture (or subculture) in which individuals live along with any belief systems or ideology [16].

Bronfenbrenner’s work has given great influence to the investigation of the talent development environment in sports. Bronfenbrenner’s ecology of human development has contributed important ideas and research on cultural aspects of human development and raising questions about treating individual and cultural processes as separate entities [17]. In the context of sports talent development, is it possible that talents and environment can be examined separately? This is the key in seeing the environment as an important and integral factor in the sport talent development.

Reference [18], inspired by Bronfenbrenner’s work, proposed a holistic ecological approach to study talent development. This approach shifts the focus from the individual athlete to the environment in which they develop. It focuses on the overall components of the ecosystem to see key success factors in producing elite athletes. Following that, further studies in sport talent development have applied the ecological approach. One among others is the research on the function of the environment as a center of activity (both

physically and mentally) in which prospective athletes interact with elite athletes that helps them to focus on their goals to become professional [3]. These studies show the role of environment as an inseparable context in the development of athletes.

IV. ATHLETIC TALENT DEVELOPMENT ENVIRONMENT (ATDE)

ATDE developed as a working model for the research in sport talent development using ecological perspective. ATDE itself is a system that looks at athletic interactions inside and outside of sport at the micro level and how these interactions are affected by the macro level. This definition reflects a holistic perspective involving micro and macro levels as well as sports and non-sports domains [3, 6, 18]. The ATDE model can be seen in figure 1.

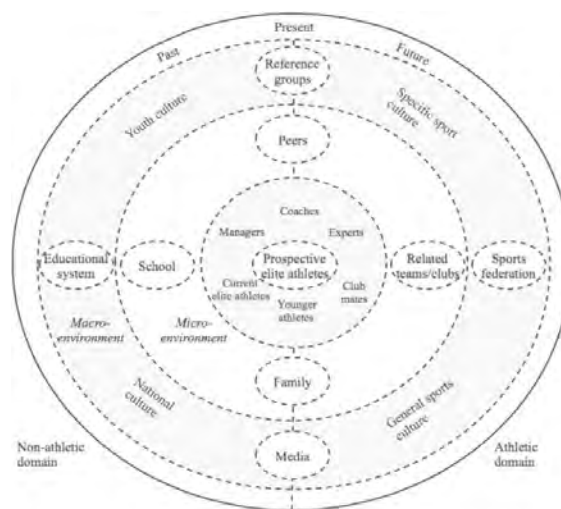


Fig. 1. The ATDE working model.

In this model, the environment is viewed as a system with functions, structures and components. The main function of an ATDE as a system is to help prospective young athletes make a successful transition from junior to senior therefore the young prospective elite athletes are positioned at the center of the model. As a structure, ATDE is formed into two levels (micro and macro) and two domains (athletic and non-athletic). The components refer to mostly persons who interact with prospective athletes. The micro level refers to the everyday interaction of prospective elite athletes and is thus characterized by real communication and interaction. The component that directly surrounds a young athlete is a club environment (such as managers, trainers, psychologists, physiologists, nutritionists and physiotherapists). The micro level also includes other young athletes and senior elite athletes who can be role models. Outside the club environment, the micro level includes schools, family, friends and also related teams and clubs. The macro level refers to a wider environment and it includes both the social settings and the values and customs to which the athletes belong. The athletic domain covers the part of the environment that is directly related to sports, while non-athletic domains present all the other areas of the athletes’ lives. The components which can be considered at macro level are the sports federations, the educational system, the reference groups, and the media. The macro environment also involves various

cultural contexts, such as national culture, general sports culture, specific sports culture and youth culture [6].

Some of the components belong to one level and one domain. The coach, for example, belong to the micro-level and athletic domain. The interaction between young athletes and coaching staff, managers and their environment has given significant influence in shaping athletes lifestyle [6]. The interaction also gave prospective athletes an opportunity to learn psychosocial skills like motivation, self-awareness, and ability to work hard [4]. Family and parents as a component may transcend levels and domains as they may belong to both athletic and non-athletic domain. Parents are important social actors in talent development program as they can have powerful influence on young athletes' expectation and attitude [19].

ATDE model gives a promising future to study sport talent development, but it has limitations to investigate components outside the micro and macro system in the environment. Some variables related to environment such as influence of population size, density or proximity to talent clubs may indirectly influence the macro system, but the ATDE model has limitation to reach it. However this insufficiency does not prevent its function to be used in talent development environment research from the holistic ecological perspective.

V. BADMINTON IN INDONESIA AS A PROMISING CASE TO STUDY TALENT DEVELOPMENT

In the 1988 Olympic Games, Indonesian archer trio: Lilies Handayani, Nurfitriyana Saiman, and Kusuma Wardhani won a silver medal. It was the first ever medal for Indonesia in Olympic Games. Four years later in Barcelona, a record was made as Indonesian badminton players, Susi Susanti and Alan Budikusuma won the gold medal. Badminton also contributed two silvers from Ardy B. Wiranata and Eddy Hartono/Rudy Gunawan and one bronze by Hermawan Susanto. All of the Indonesian medals in the 1992 Olympic Games were won by badminton players.

The success story in Barcelona continued in the next Olympic Games in Atlanta. Again, badminton gave a vital contribution to the Indonesian Olympic Team. Indonesian badminton players won four medals. The gold medal was a contribution of men's double players Rexy Mainaky/Ricky Subagja. Mia Audina won the silver medal. The two other medals were bronze which was contributed by Antonius Ariantho/Denny Kantono and Susi Susanti. Up to the last edition of the Olympics Games in 2016, only three sports have won the medals for Indonesia. Since 1992, only badminton and weightlifting have routinely gained Olympic medals with badminton being the only sport which has contributed gold medals to Indonesian Olympic team. These international achievements were not possessed by any other sports in Indonesia.

When compared to other sports in Indonesia, badminton's achievement in the international level looked very prominent. Indonesian badminton athletes were also able to excel at the World Championships and not only in the Olympics. According to the BWF World Rankings Week 28 (updated: 2018-07-12), Indonesian badminton players' best achievement in each category can be seen as follows:

TABLE I. INDONESIAN PLAYERS ON BWF WORLD RANKINGS WEEK 28 (UPDATED: 2018-07-12)

Category	Player	Rank
Men's Singles	Anthony Sinisuka Ginting	12
Women's Singles	Gregoria Mariska Tunjung	22
Men's Doubles	Marcus Fernaldi Gideon Kevin Sanjaya Sukamuljo	1
Women's Doubles	Greysia Polii Apriyani Rahayu	6
Mixed Doubles	Tontowi Ahmad Liliyana Natsir	1

The table shows the most recent Indonesian badminton players position on BWF World Rankings. Indonesian men's doubles and mixed doubles players are on the top of the table. The women's doubles players are also in the top ten. This successful achievement was not only in this present time. In the last decade, Indonesian badminton athletes have won seven BWF World Championship and Olympic gold medals. They were Markis Kido/Hendra Setiawan in 2007 and 2008, Nova Widianto/Liliyana Natsir in 2007, Mohammad Ahsan/Hendra Setiawan in 2013 and 2015, and lastly Tontowi Ahmad/Liliyana Natsir in 2016 and 2017.

The success of Indonesian badminton players in international level has expanded over several decades. In the 50's, there was Tan Joe Hok who became the first Indonesian player to win the All England. The record that Rudy Hartono made as eight times All England champion, seven of them were won consecutively from 1968 to 1974, which was remarkable. Minarni Sudaryanto and Retno Koestijah won the All England women's doubles championship in 1968. The tradition as champions in All England continued by Liem Swie King, Christian Hadinata, Ade Chandra, Tjun Tjun, Johan Wahyudi, Verawaty, Imelda Wigoena in the 70's. Rudy Heryanto, Hariamanto Kartono (All England) and Icuk Sugiarto (World Championship) were the champions in the 80's. Indonesian players who won international championships in the 90's were Joko Supriyanto, Hariyanto Arbi, Alan Budikusuma, Ricky Subagja, Rudy Gunawan, Rexy Mainaky, Chandra Wijaya, Sigit Budiarto and Susi Susanti. In the beginning of new millennium, Hendrawan, Taufik Hidayat, Halim Haryanto, and Tony Gunawan came up to continue the success record of Indonesian badminton on the international level.

The BWF regulation requires all players who take part in World Championship to be registered by their country's badminton federation and cannot register individually. Players in other BWF championship such as Thomas Cup, Uber Cup and moreover Olympic Games, also represent their country. All Indonesian players who compete in the international stage were prepared through the National Training Center (Pelatnas) managed by the Indonesian Badminton Federation (PBSI). The National Training Center reflected the badminton talent development in Indonesia that consistently produces top level athletes. This means the badminton milieu in Indonesia definitely fulfilled the criteria of successful talent development environment.

VI. DISCUSSION

The international achievement of badminton is very prominent compared to other sports in Indonesia. Even though the achievement is made up of many factors, the majority of research in this area displays a one-dimensional

focus; for example, concentrating solely on the anthropometric or physiological dimension. To understand more comprehensively about badminton talent development in Indonesia, the key question should no longer be whether nature (genetic) or nurture (environmental factors), but how they interact [15]. The Indonesian badminton achievement in international level reflected a successful record of producing elite senior athletes. It fulfills the criteria of successful talent development environment. Hence, it is urgent to study badminton talent development in Indonesia using holistic ecological approach.

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