

**PRACTICE AND CHALLENGES OF COACHES IN
IDENTIFYING TALENT ATHLETES OF MIDDLE DISTANCE
OF ETHIOPIAN ATHLETICS FEDERATION**

BY

SAHILU MINTESNOT

**August, 2012
Addis Ababa**

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**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES
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Approved by board of examiners

Chair person, Dep. of Graduate Committee.

Signature.

Advisor

Signature.

Internal Examiner

Signature.

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Acronyms

AAHPERD=American Association of Health, Physical, Education, Recreation and Dance

GYM= Gymnasium

IAAF= International Association Athletics Federation

MDR= Middle Distance Running

PE= Physical Education

USOC= United States Olympic Committee

VO2 max= Maximum Amount of Oxygen Consumption

Abstract

The purpose of this study was to assess practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation. The method of the study was descriptive. The subjects in this study were 70 athletes, 15 middle distance coaches, 9 club administrators and 4 Ethiopian Athletics Federation officers. Data were collected through questionnaires, interview and document analysis. Then the data gathered were analyzed and interpreted by using different statistical methods such as percentage. The result indicated that, the majority of the respondents replied that there is no talent identification method to join the club, the coaches have less educational background, athletes choose the discipline because of economic rewards rather than the talent they have and competition is the only means to identify talented athletes in most clubs. In general, from all this it can be concluded that practice and challenges of coaches in identifying talent athletes in middle distance race is poor because of coach's qualification, clubs and federation do not have integrated work and smooth relation. Even the clubs and federation do not have talent identification procedure to recruit athletes. Therefore, giving in service training to the coaches, preparing talent identification procedure, give chance to athletes during planning, clubs fulfill all the training situation, having smooth relationship in between the concerned bodies like federation, clubs, other coaches to minimize the degree of challenges related to the topic.

CHAPTER ONE

1. Introduction

This Chapter deals with back grand of the study, statement of the problem, objective of the study, basic research questions, significance of the study, delimitation of the study, limitation of the study, operational definition of terms as used in the study and organization of the study.

1.1 Back ground

Athletics is broadly divided in to two categories such as track and field events.

Track events include, short distance, middle distance and long distance, where as the field events are jumping and throwing events.

Middle distance is a part of track events, which is found in between the short distance and long distance as its name implies. Specifically middle distance events are 800m, 1500m and 3000m. This field requires both aerobic and anaerobic capabilities of an individual physical qualities, i.e. speed, strength, speed endurance, endurance etc.

The techniques in middle distance competitions are starting and running pace, unlike short distance, Middle distance is an Olympic programmed of track events of modern Olympic game and popular events.

Ethiopia participated in modern Olympic game at Melbourne (Australia) since 1956 in athletics, boxing and cycling. It was the first time to Ethiopia to join the Olympic history and was a spring board for next Olympic game.

The term middle distance in athletics normally refers to race which include those distance from 800m up to 3000m on the truck (introduction of coaching-the official IAAF guide, 2002).

Sport training involves many subjects, but the most important elements in the process of sport training are athlete and the coach.

Coach is an organized provision of assistance to an individual athlete or the group of athletes in order to help them to develop and improve their performance (Ibid).

One of the best qualities of successful coach is identify the athlete's talent, because identifying the talent of an athlete minimizes time expenditure to make an athlete reach in to top Performance. It could be argued that the competition itself might be one form of talent identification, with competition seeing the best of most talented athletes rise to the top in this chosen sport, however, many athletes that do not succeed in the particular sport they have chosen, may be better suited to a different sport and never realize it. So this shows that talent identification is the crucial task that has to be done before which is followed by developing it. In most case talent identification is a term that is often confused with the term talent development.

Therefore, it is vital to define talent identification clearly Peltola and Thomson define talent identification as the process by which children are encouraged to participate in "the sport at which they are most likely to succeed, based on results of testing selected parameters. These parameters are designed to predict performance capacity, taking in to account the child's current level of fitness maturity"

In our country individuals are participated in particular sports might be determined by factors such as traditions, ideals, desire to take part in sport according to its popularity, parental pressure and school teacher's specialty, the proximity of sport facilities etc. This system can lead to more popular sport in a particular area having a plentiful supply of athletes while the lower supportive sports struggle for participants. But for many specialists involved in sport, hoping that individual and help those individuals choose the sport that is best suited to their abilities. (Bompa,85). While talent identification through the competition has, in reality been operation ever since organized competitive sport began. It has only been relatively recent systematic talent identification as become a part of sport around the world (Bompa 1985).

Eastern countries like the German, Democratic republic, the soviet union, Bulgaria and Romania are examples of countries that implemented state run, systematic talent programs as early as the 1960's and 70's (Bompa 85). While western countries such

as Australia and the United States have typically attempted to have systems in a place to develop talented individuals after they have identified themselves through competition on their chosen sport (Peltola 92).

Several authors have written about the advantage and disadvantage of sophisticated talent identification programs. Bompa 85 and Peltola 92 see talent identification as helping accelerate an identified individual's progression to an elite level and aiding them in reaching a high performance level by the time they reach international level. As well as helping to eliminate the frustration caused by participating in sport that they are not suited to. They also see the talent identification as being advantageous to coaches by focusing their training time on athletes with higher level of talent and abilities for their particular sport. According to Bompa 85 "Scientific talent identification is a critical factor in the development of world class athletes"

Identification of talent need to be as scientifically based as possible the days of relying on the like or dislike of individuals by the coach involved are need to be over, with all the science involved in talent identification who ever, the human elements so critical to sport are often be overlooked.

To conclude this section, while sport is a consideration in this study, the specific focus and application of this study is athletics regarded as being one of the so called land of athletes and famous in Athletics in the world.

1.2 Statement of the problem.

Athletics is a dynamic sport that is competed in a constant changing environment. In fact, sport as a whole is a phenomenon where the specific circumstances are difficult to predetermine or ever simulate. There are a number of inherent features to sport that makes athletes very unique besides this challenge, the issue of accurate and reliable talent identification models and methods can be seen.

The study of this paper intends to find out or investigate the existing problems in practice and challenges of coach in identifying talent athletes of middle distance of Ethiopian athletics federation.

The Ethiopian Athletics federation's system might be the reason for the problems in talent identification or coaches' poor awareness and lack of knowledge towards the concept of talent identification.

Whatever the cause I want to explore the following

1. Challenges of coaches in talent identification in Ethiopian athletics federation
2. Practice of coaches to identify talent athletes in Ethiopian Athletics Federation.
3. Ethiopian Athletics Federation uses competition as the only means by which coaches identify athlete's talent.
4. The process of talent identification must consider the athletes age difference.
5. Consideration that coaches must follow to identify the athlete's talent.

1.3 Objective of the study

1.3.1 General Objective

The sole purpose of the study is to find out the practice and challenges, of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation.

1.3.2 Specific Objectives.

1. To identify what specific challenges existing in the process of talent identification in middle distance race.
2. To find out the source of the challenge in identifying talent athletes in middle distance race.
3. To describe who are the victims of the problem and who cause the problem.
4. To recommend and to find possible solution to minimize the challenges in talent identification.
5. To provide necessary information for future study.
6. To investigate whether coaches have criteria and method in identifying talents.

1.4 Basic research questions.

In order to formulate a proper talent identification method the researcher questions are outlined as follows.

- What are challenges to identify the athlete's talent?
- What are the best methods to identify the athlete's talent?
- What are the exact methods which serve for talent identification?
- How to identify the critical talent of athletes?
- How the coaches develop and deploy talent identification?

1.5 Significance of the study

The study would support and enrich the proper talent identification of coaches in middle distance race athletes. To this end, the significance of the study is.

1. To provide accurate facts for the better method of talent identification in middle distance race.
2. To incorporate the new result of the research findings in to the system in the athletics federation talent identification method.
3. To provide favorable suggestions that would help for the development of athletes performance and how coaches identify the athletes talent.
4. To investigate some of the problems of coaches talent identification method in the Ethiopian athletics federation.

1.6. Delimitation of the Study

The study is delimited by focused on, only some selected athletics clubs in Ethiopian athletics federation, conducted on, only middle distance athletes and carried out only in Addis Ababa region clubs except one club.

1.7 Limitation of the study

The limitations of the study are Shortage of time, lack of sufficient budget, shortage of references or literatures etc about the issue and tendency not to give response of athletes.

1.8 Operational Definitions

The following key terms were used throughout this document to ensure clarity of measuring and usages the terms are defined as below:-

Athlete: - is a person who trains for performance enhancement under the supervision of a coach in a specific club and event.

Athletics: - is a track and field sport, comprising group of athletics events or disciplines each of which involves either running jumping and throwing.

Club: - is an athletics organization that provides training and other benefit for the athlete.

Coach: - is a person who trains an athlete to reach top performance

Federation: - is an organization that governs and directs different athletics clubs.

Identification: refers to an act of organizing Establishment to find out, diagnosis, selection and choice of an object or a person.

Middle distance race (MDR): - is an athletic event that includes 800m, 1500m and 3000m races.

Motivation: - is some kind of internal drive that encourages somebody to pressure a course of action.

Skill: - is an ability to do something acquired through practice or learning.

Talent : - is an inherited ability that is genetically endowed or rather something that is developed over time as a result an individual exposure to proper training methods and opportunities as well as their interaction with an optimal environment.

Talent identification protocol: - sets of criterion that helps to identify talent of an athlete.

VO2 max: - is the maximum amount of oxygen able to be taken in transport to and consume by working muscle to produce energy.

1.9 Organization of the Study

Concerning the organization of the study, it contains five chapters; the first chapter deals with introduction consist of backgrounds of the study, statements of the problem, objectives of the study, research questions, significance of the study, delimitation of the study and operational definitions. The second chapter is concerned with the review of related literature pertinent to the research. The third chapter will cover research design and methodology while the fourth chapter will deal on findings, discussion and inter predation of data lastly, in chapter five the study comes up with research summary, conclusion and recommendation.

CHAPTER TWO

2. Review of Related Literature

2.1 Talent

Talent is defined as a gift of ability that is domain specific (i.e. ability that is limited to a specific domain)...., talents are seen as realized abilities that are specific to a domain, with these talents and abilities reliant on development.

When reviewing the definitions of talent in literature a common term arises again and again. This term has to do with the origin and nature of talent.(Bompa 85 and Thomson et.al. 85).

2.1.1 Giftedness

Central to the argument of the origin and nature of talent (the nature VS. nurture debate) is whether talent is an inherited ability that is genetically endowed or rather something that is developed over time as a result of an individual's exposure to proper training methods and opportunities as well as their interaction with an optimal environment. Some views of talent ascribe to extra concept of giftedness as an explanation of the inherited nature of ability and then refer to talent as the developed function of giftedness or high performance. Others are found to use these concepts synonymously.

Major proponents of the separateness or distinctive nature of these two terms or concepts are Van Rossum and Gagne (2005:283), who explain the Differential Model of Giftedness and Talent credited by these authors to the original work of Gagne (1985; 2003; 2005), define giftedness as "...the possession and use of high natural ability (called aptitudes) in at least one of four ability domains, so that the level of performance places the person among the top 10% of same-age peers.

The definition of talent provided by Howen et al. (1998) has been cited by many studies and researchers. In this definition, Howe et al. (1998:399-400) assigned "...five properties to talent: (1) it originates in genetically transmitted structures and

hence is at least partly innate. (2) Its full effects may not be evident at an early stage, but there will be some advance indications, allowing trained people to identify the presence of talent before exceptional levels of mature performance have been demonstrated. (3) These early indications of talent provide a basis for predicting who is likely to excel. (4) Only minorities are talented, for if all children were, there would be no way to predict or explain differential success. Finally, (5) talents are relatively domain-specific.”

2.1.2 Skill

Lee et al. (2001:115) define skill as an “... underlying capability or potential to Perform at a certain level” Skill is further defined as the “Ability to do something, (esp. manual or physical) will, proficiency, expertness, dexterity; an ability to do something, acquired through practice or-learning: (Oxford Talking Dictionary, 1998: npn). Once again, the issue of the ability to acquire skill through practice and learning and highlighted as being essential to the concept to skill. As can also be seen from this definition as well as the definition of talent, these two concepts are closely interrelated with the concept of talent integral in defining the concept of skill and vice versa.

For example, a talented individual is often referred to as being skilled at performing a certain function and conversely, a highly skilled individual is regarded as being talented and with high ability in their domain of choice. Therefore, it stands to reason that a talented individual has the ability to learn or to acquire skills or a skill at more efficient and effective rate than those regarded as being less talented, as has been noted earlier in this chapter.

2.2 Talent Identification

Some basic physiological principles should be emphasized before starting such a complex process of identification of young talents. This has been demonstrated scientifically by many researchers (Klissouras V: JAP 1971; Komi P.V., Viitasalo J.H.T, Acta Physiol. Scand: 1977,etc).

2.2.1 Identification

Identification is described as "... establishment finding out, ascertainment diagnosis, Selection, choice" (Oxford Talking Dictionary, 1998: npn). Reber (1985:341) refers to identification as "As act of recognizing similarity or identity between events, objects or persons."

2.2.2 Talent identification

In considering the conceptual definition of talent identification, some of the views and findings of the related literature have been taken into consideration.

Booyesen (2002:13) defines talent identification as "... identifying those individuals who possess a quality of execution or ability to perform, that is (far) above the normal or average, that stands out and makes a powerful statement about the individual's ability, with the intention of future development and nurturing of this talent to the benefit of this talent to the benefit of the individual as well as the country.

Identify or detect, means to discover something which is hidden, in order to know, among a large population of youngsters, those who have a greater possibility to achieve, in the long term, the required capacities to reach top performances at the moment when his/her capacities will be optimal.

There are two interdependent actions that should be considered and distinguished.

- Identification, which consists of evaluation procedures belonging to a specific sport.
- Development of the Talent, which depends on: environment, family, school, club and training structures where the athlete shall develop.

2.3 What are the Limits?

The limit can be emanated from different levels like Ethical and social level which reflects mainly on the future destiny of the athlete. Technical level can also be taken as the other means of limits and it focuses on the technical aspects that the athlete need to acquire or develop as an aspects for the formulation of a precious prediction. In general the limit has/have several consequences.

Statistics of countries with talent identification program

Countries with Talent Identification system					
No	Country	Detectin debut	Population	Of medals	Population/Medals
1	GDR	1962	17M	102	1/166666
2	BULGARIA	1980	8.5	35	1/242 857
3	HUNGARY	1978	10.5M	23	1/456 521
4	ROMANIA	?	22M	24	1/916 666
5	USSR	1970	255M	132	1/1931 818
6	TOTAL		313	316	1/990 506

Table 1.Statistical description of countries with talent identification method.
(Ballestors 1992:30)

Therefore it is more prudent to define talent identification as a process which takes into consideration those modern tendencies, using optimal training methods to develop the young talent in order to increase the probabilities for him to reach excellence.

2.4 Modern Tendencies P

There are three aspects which help to judge if a certain subject as a real talent:

- The status of development of his capacities which should be much higher than the average at a certain biological age.
- The velocity of development of his capacities giving the possibility to find favorable conditions.
- The motivation showed constantly by him for reaching the top level in a certain sport.

The Follow-up

The discovery of a talent is never due to chance but comes from a precise policy of a certain sport organization which needs:

- A process which includes a programmed of evaluation this process needs clear answers to the following two question:
- Why establish a talent identification process?
- How to organize it?

Why?

- To establish a sort of initial perspective to the benefit of the youngster.
- To offer opportunities, to all those who show the capacities and the motivation, to orientate towards a high level programmed.
- To increase the number of athletes who can achieve a high level of performance.
- To reduce the investment of a National Federation, the volume of work and the Coach's time dispersion.
- To increase the number of high level athletes in a Country without affecting the health of their young athletes.

How to do it?

The process should satisfy the following three conditions:

- To obtain a consensus from the grassroots to the top (family, officers, school, teachers, cubs, coaches, federation, ministries of sport and education)
- To utilize a consolidated model.
- To have appropriate structure for: accommodation, studies, training and a follow-up to propose to each detected athlete

2.5 Factors which can play an important role with talent identification.

- Anthropometric factors:
Height, Weight, balance between lean and fat Mass, Body's Center of Gravity.
- Physical Capacities:
Velocity of reaction and 110 tractions, endurance versus velocity, endurance versus Strength, Dynamic and Static Strength, suppleness, Co-ordination
- Physiological Capacities: capacity and Power of aerobic and anaerobic endurance.
- Neuron-muscular Capacities:
Balance, tempo-spatial, rhythm expression, gliding skills
- Cognitive Capacities: Creativity, observation skills, analysis, adaptation, and anticipation, tactics, motor-intelligence.
- Psychological Capacities:
Concentration, adaptation and assiduity to training, perseverance, to accept frustration, psychological endurance and motivation, psychic stability, stress control.
- Social conditions: Acceptation of his role, team building attitude, relations with the coach.

2.6 Tests

The choice and the validation:

- Usual methodological criteria:
- Congruency, no redundancy, accessibility, fidelity, validity, and productivity.

Predicative:

A test can be defined predictive if independently from the age and level of education and training of the subject, the correlation between two or more results remains significant: knowing one of them allows you to forecast the other.

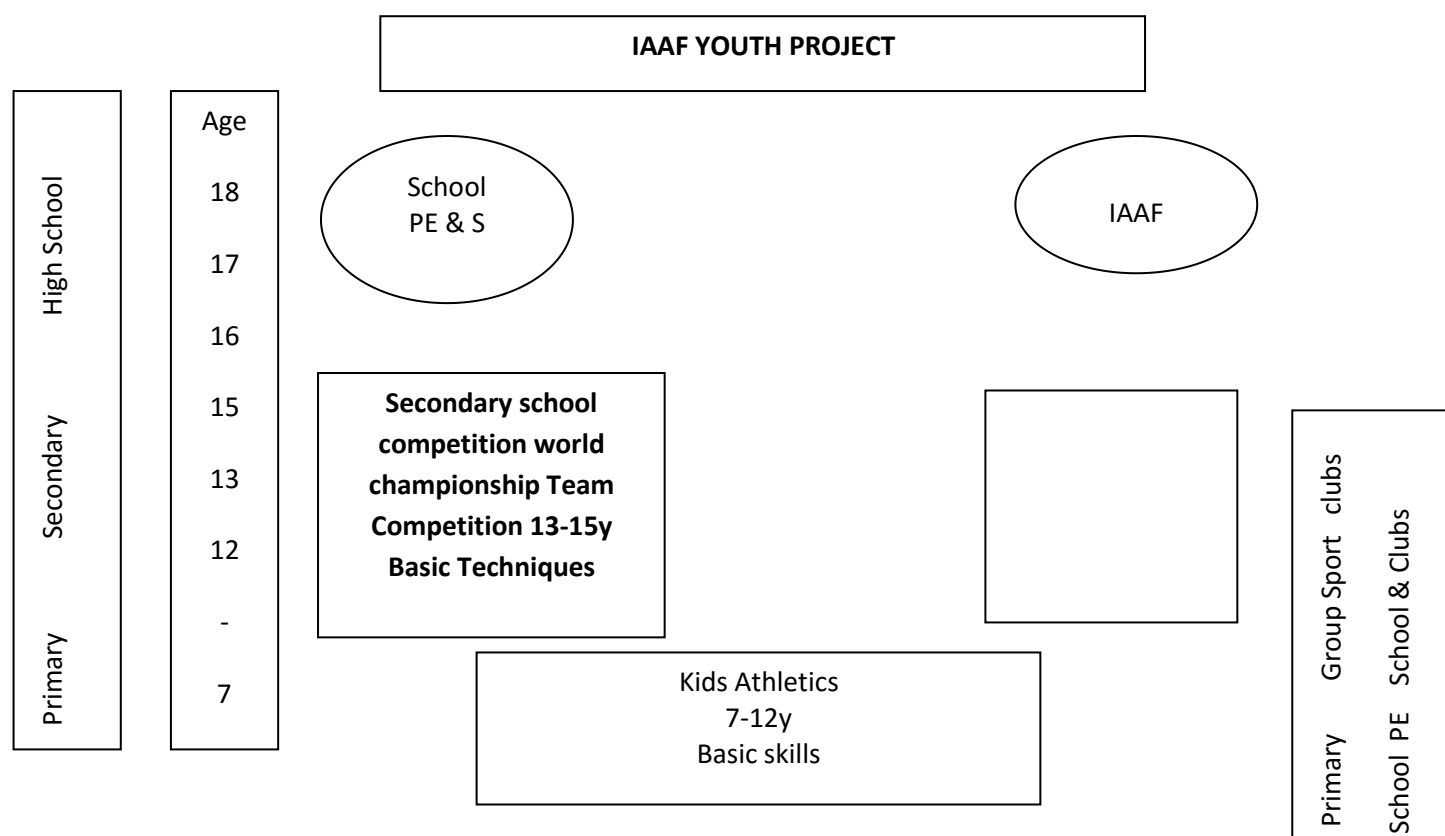
2.7 The IAAF Proposal

Following the decision taken by the IAAF Congress in Paris (2003), the MSD was asked to design a programmed which can satisfy the School and the Sport needs.

As recent researches demonstrated (EAA research Curt Hogberg, 2005) the most critical period to maintain youngsters in Athletics is between 13 and 15 years of age.

Starting as consolidated tool: “Kids Athletics”: A team events competition for children (7-12 years old), we have completed the Youth Project linking Kids Athletics to real athletics (after 15 years old), designing a new programmed of training and competitions for 13-15 years old.

Fig.1 The IAAF proposal for school Athletics program that serves for talent identification.



Through this double check it will be possible to verify if those who pass the various level of the funnel are the same youngsters who obtain the best cumulated score.

2.8 General Programme for talent identification

The Programme shall, identify all the stages which drive to top level:

.stage 1: Before 10 years:

Learn and develop optimal psycho-motor abilities: mutual Sport practice (... at least 2-3 sports):

School

- Stage 2: 10-12 years; start of “training”

Develop general motor abilities and start to develop physical capacities oriented to a specific sport: Talent identification”

School/Club/Federation

- Stage 3: 13-15 years: increase of the training volume and first orientation by event groups: “Talent Development.. Development of specific required physical capacities.

School/Club/Federation

-

- Stage 4: 16-18 years: Increase training volume and start specialization: Talent confirmation”

Club/Federation

Competition for 13-15 years_

- The objective of this program is to fill the gap which remains among this age category its main features are as follows:
- Being consistent with KA, this tool will be of service not only to federations but also to schools.
- Six-day competitions: 4 Athletics events and 2 Cross-Country (each day counts for the final ranking)
- Competitions are carried out with six Athletics in a team. Every athlete selects 2 or 3 events from 2 or 3 event groups, among the 5 proposed one E.g. 1 running, 1 jumping and 1 throwing event, plus 1 relay.
- Comments: 2 extra days are devoted to Athletic conditioning tests.

Event Groups

Group	Events	Girls	Boys
G 1	Sprint	50m-100m	50m-100m
G 2	Hurdles	50H (0.65-10-7.5)	50H (0.76-10.5-7.5) 100H (0.84-13-8.5)
G 3	Distance Race walking	1000-2000 M 2000-3000M	1000-2000M 2000-3000M
G 4	Jumping	LJ TJ. HJ.PV	LJ TJ. HJ.PV
G 5	Throwing	SP 3kg JT 500g DT (500g) HT 3kg	SP 3kg JT. 600kg DT 1kg HT 4kg
	Relay	4×50m	4×50m

Table 2 Completion proposed by IAAF for general talent identification program.

Test for 12/14 years old athletes

- 30m standing start
- Throw backwards of 2-3 kg medicine ball
- 2 hopping jumps (R and L Legs)
- Endurance test (cooper test)

. The above tests should be repeated twice in a period of 4 months which coincides with a beginning and the conclusion of the competition period.

March/June

. The overall program will include 8 competitions days and 2 testing days, during training camps (i.e. Easter and at the end of the competition period...July:

2.9 Talent Identification in Asia

- The sport in general and athletics in particular, lays in the ability to develop school sports, (at all three levels) and establish a simple but effective talent identifications system.

The project was carried out within the context of a joint venture known as the **GERMAN-ASIA sport project**. This how developing country's motor potential in athletics might be mobilized.

2.9.1 Talent Identification Strategy designed

Development and implementation of the strategy

Strategy- Phase

- To reach even the most remote districts
- The following design principles were deemed important
 - A) The system should be highly flexible and without any time pressure
 - B) As many administrator and coaches as possible should be involved
 - C) The number of participating children should be maximized (as higher Number gives a greater chance of finding the real talented.)

A six- Step Strategy

Step 1: The creation of the general framework with the establishments of organizing committee includes all the relevant sport institutions of the province and days work shop.

Step 2: Education or regional organizers

Step 3: Education of local teachers

Step 4: The talent identification operation

Step 5: Education of “Talent ID” coaches avoid theoretical overload in Favor of practical knowledge, include high input on administration (organizing skills), provide guidance towards self Reliance /management/ focus on improvement of personal Teaching/coaching skills/

Step 6: Competition

2.9.2 The Identification process

- Within circumstances (infra structure, equipment, etc) in developing countries cannot expect the scientific criteria of objectivity, reliability and validity
- There are few internationally agreed methods and criteria of the diagnoses and prognosis of athletics talent.

2.9.3 The Four Primary Criteria

1. Prognosis of final body height (form biomechanical) changes of anybody segment
2. Ability for speed, the dominate physiological functional factor
3. High level of elasticity (flexibility) as the best protection against injures
4. Absence of orthopedic anomalies. (At spine, sip knee foot joint)

Table 3 After the competition of talent identification system, recommended the following 5 step programmed

No	Test exercise	Criteria Assessed
1	40 m Sprint Athlete gripping a shoulder high bar with both hands a) Start following acoustic/gun, whistle/ or visual/flag signal/ b) Keeping time by crossing 40m final line	Speed and Acceleration
2	800m (Boys)/600m(Girls) Start according to track length a) Starting in groups of 15-20 athletes b) Keeping time by crossing final line	Aerobic endurance

Step 1:

Under the responsibility of the regional “Education department” new 11-13 year old student should be identified and selected at least every two years.

Step 2:

The selected talent should undergo a 1-2 years decentralized “Basic training program” in their respective regions special coach will be in charge

Step 3:

After a multilateral introduction in to athletics, the 14-15 year olds have the quality based on assessment of their real potential and prospects

Step 4:

Improve the performances of the qualified athletes through an extended “Basic training programmed” (BT-11) for the first time takes their individuals for certain wants.

Step 5:

- The final stage system
- Should offer three different paths towards further improvement and respective specialization (Build-up training)
 - a) Continuation at the respective region until then maximum age of 19 years
 - b) Transfer of the training process at university level
 - c) Training under specialized coaches (by CECS level 11 qualified coaches)

2.9.4 Recommended competition programmed

First day

Boy 100m_____ Ball throws (200gr) Long Jump

Girls 80m Hurdles (76cm)_____ High Jump Ball throw (80gr)

Second Day

Boys _____ 80m _____ Hurdles (84cm) _____ high Jump _____ 100m

Girls _____ 100m _____ Long Jump _____ 800m

Aim

- Multilateral education of young athletes
- Development of social values and team spirit
- Communication between different regions
- Chance for late developers

- Talent identification without systematic promotion will remain an empty hope
- Essential follow-up measure such as sound training programs and competition opportunities.

2.10. IAAF Kids athletics a team event for children

1. Age group and Event Program

- Group 1 children at the age of 8 and 9 years
- Group 2 children at the age of 10 and 11 years
- Group 3 children at the age of 12 and 13 years

Age groups	I	II	III
Age (in years)	8-9	10-11	12-13
Spiriting/Running even group/			
Spring/hurdles/	-	x	x
Sprint /slalom/	-	-	x
Formula one	x	x	x
Endurance running	x	x	x
Jumping EVENT group			
Pole ling jump	-	x	x
Rope skipping	X	-	-
Forward squat jumping	x	x	-
Cross hopping	X	X	x
Ladder Running	-	-	x
Throwing went group			
Target throwing	x	x	-
Kids javelin throw	X	x	X
Knee throwing	x	x	-
Overhead back throw	-	-	x
Rotational throw	-	X	X
Total	8	9	10

Table 4 The IAAF Kids Athletics a team event for children. (2007)

2.11 Determinants of Middle Distance Running Performance

The total energy required by the muscles for a particular race performance is equal to the sum of the energy required to accelerate to race pace and the energy required to sustain this pace for the duration of the race. Any factor which affects the body's ability to supply energy, or the energy demanded by working muscles, during a race can be considered a determinant of middle distance running performance.

2.11.1 Determinants of Energy Supply

Anaerobic energy production

The maximum amount of energy that can generate anaerobically is limited by the size of a runner's anaerobic capacity. Thus increasing this capacity would improve middle distance race performance.

Aerobic energy production

The total amount of energy produced aerobically will depend upon VO_2 kinetics and the final rate of oxygen uptake reached. This final rate of oxygen uptake in the 1500 and 300 m events would essentially be limited by $\text{VO}_{2\text{max}}$. However, 800m runners only reach approximately 94% $\text{VO}_{2\text{max}}$ by the end of the race and are therefore limited by the final % $\text{VO}_{2\text{max}}$ that they are able to attain (Table 3.2). In summary, for a particular middle-distance race, the total aerobic energy production will be influenced by VO_2 kinetics, the $\text{VO}_{2\text{max}}$ that can be attained in the duration of the race and $\text{VO}_{2\text{max}}$.

2.11.2 Determinates of Energy demand

In addition to increasing the energy supply, attention should be given to decreasing the energy demanded by the working muscles. Therefore a runner may improve their performance by reducing the energy required to overcome air resistance, or by reducing the energy required to run on a treadmill at race pace.

Overcoming air resistance

The air resistance encountered by a runner when running at a given speed depends on the density of the air and the extent to which a runner is able 'draft' behind fellow competitors. Air density is influenced by air temperature and air pressure, being

highest when the temperature is low and the pressure is high and lowest when the temperature is high and the pressure is low. Thus, both air temperature and air pressure might be seen as environmental determinates, influencing the energy demand for any middle distance race performance.

With respect to drafting, the air resistance encountered by a runner when running at a given speed is less when running behind other runners. The closer a runner is able to run to the runner in front, the greater the reduction in air resistance. Furthermore, the reduction in air resistance encountered when a small runner runs behind a larger runner will be greater than when both runners are of equal size or a large runner runs behind a smaller runner.

2.11.3 Running Speed – VO₂ Relationship for treadmill running economy

As discussed previously, the energy demand of a runner can be expressed as a VO₂ demand. The relationship between the VO₂ demand and running speed can be derived for sub maximal treadmill running speeds, as at these speeds energy is produced almost entirely through aerobic metabolism. Thus, the measured rate of oxygen uptake is assumed to equal the required rate of energy demand. Figure 3.12 illustrates the running speed VO₂ relationships for six well-trained runners and the variation between these runners in the rate of oxygen uptake required running at a speed of 19.3 km h⁻¹ (5:00min mile-1 pace).

It is apparent from Figure 3.12 that there is considerable variation. Between individuals in the oxygen uptake required to run at any given sub-maximal speed (i.e. running economy). Of the six runners whose data are presented in, the runner who requires an oxygen uptake of 55.0mlkg⁻¹min⁻¹ to run at 19.3kmh⁻¹ would be said to have good economy at this speed. In contrast, the runner who requires an oxygen uptake of 65.9ml kg⁻¹ min⁻¹ to run at 19.3 km h⁻¹ would be said to have poor economy thus, the lower the oxygen consumption to run at, a given speed, the better the running economy of a runner at this speed.

Running economy can be assessed for any sub-maximal speed by measuring the VO₂ when running at this speed on a treadmill. However, middle distance races are

completed at speeds for which the VO_2 demand is greater than $\text{VO}_{2\text{max}}$ (i.e. supra maximal running speeds). The VO_2 demand cannot be measured at these speeds as it exceeds the maximal attainable value ($\text{VO}_{2\text{max}}$) but it can be predicated by extending the sub maximal running speed VO_2 relationship. The variation between individuals in the VO_2 demand is illustrated for a speed of 24 km h^{-1} (1500m in 3:45).

For two runners who differ in running economy to achieve the same performance in a middle distance race, they must sustain the same average speed throughout the race. The VO_2 demand to run at this speed will be same in the runner with the better running economy. The oxygen cost associated with accelerating to this speed will be the same for both runners, for as discussed previously this only depends on the final speed attained. The total oxygen demand for completing the race (the sum of VO_2 demand of accelerating to race pace at the start of the race) will be lowest in the runner with the superior economy. Thus, running economy is an important determinate of middle-distance race performance.

A runner who has good economy at sub maximal speeds will not necessarily have good economy at supra maximal race pace speeds. This is due to the variation between individuals in the slope of the running speed VO_2 relationship (i.e. the rate of increase in VO_2 with increases in Running speed) for sub maximal treadmill running. Where two of the six runners have good economy at sub maximal speeds but relatively poor economy at supra maximal speeds, whilst one runner has relatively poor economy at sub maximal speeds but good economy at supra maximal speeds. Moreover, the runner who has the best economy at the slowest speed (10 km h^{-1}) has the poorest economy at the highest speed (25 km h^{-1}) thus, it is not running

Economy per se, but running economy at race speeds that will determine an athlete's middle- distance race performance.

2.11.4 A Model of Middle Distance Performance I

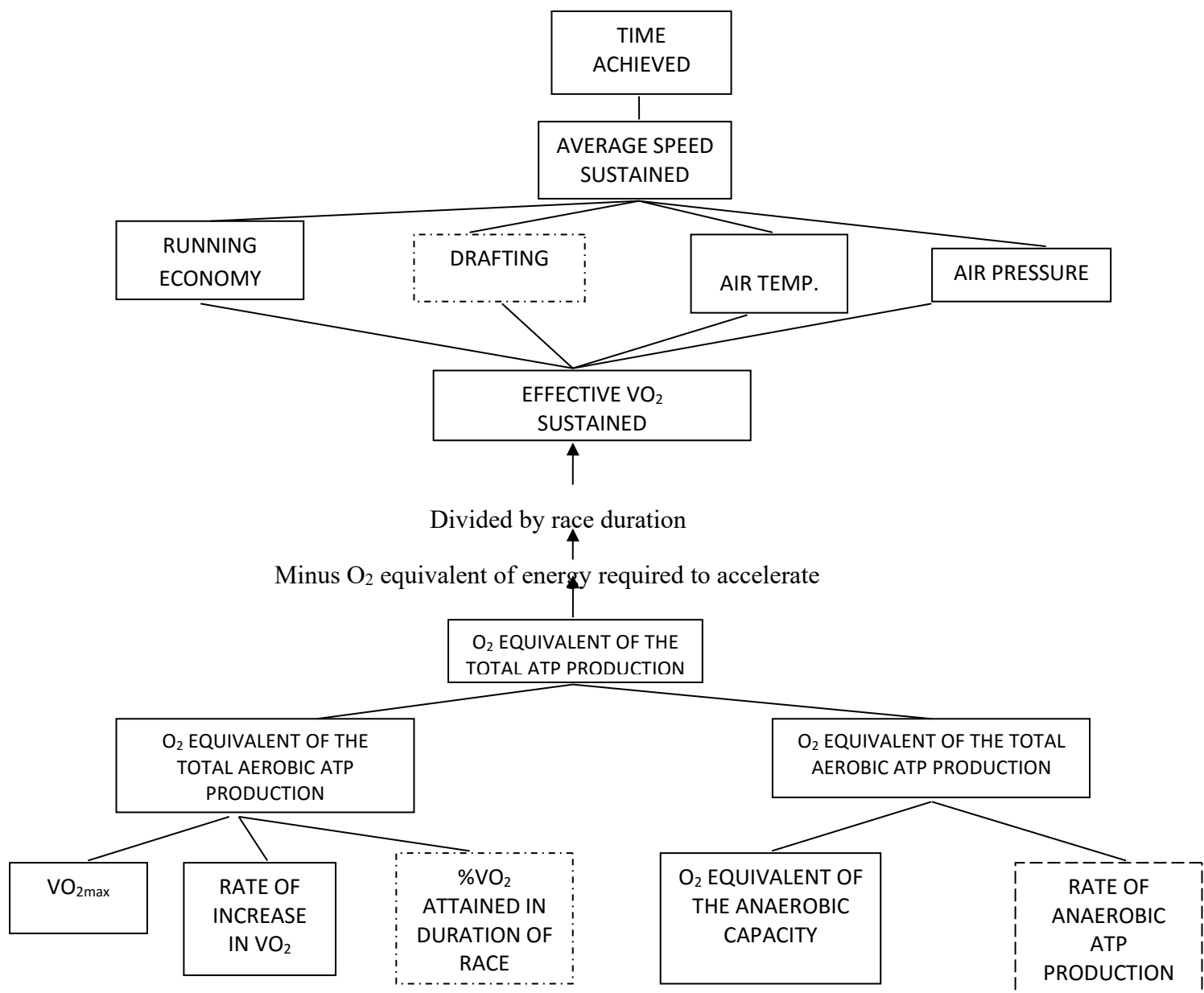
Middle distance running performance in which the determinants of the total capacity to produce energy during a race and the sustainable running speed associated with a given effective energy are outlined. The majority of these determinants relate to the

physiologic will characteristics of the runner (i.e. ($\text{VO}_{2\text{max}}$ VO_2 kinetics, anaerobic capacity and running economy), though as has been discussed previously, environmental factors (E.g. “air temperature and air pressure and race strategy (e.g. drifting) must also be taken into consideration. Furthermore, whilst most determinants exert their influence on performance over all race distances, others only exert their influence over some of the race distances within the domain of middle-distance events,

2.11.5 Application of the Model of Middle Distance running

The model presented can be used in conjunction with the data presented to determine the influence on estimated race time of each determinant of middle distance running performance. The effects of 10% improvements in $\text{VO}_{2\text{max}}$ VO_2 kinetics, anaerobic capacity and running economy on performance over 100, 800, 1500 and 3000m are presented for a typical middle-distance runner. These four variables are the only physiological determinants.

Fig 2 The physiological determinants of Middle distance Race.



The physiological determinants of Middle distance Race (kyle 1979)

Which exert an influence on performance across all middle distance events? It is evident that anaerobic capacity becomes less important and VO_{2max} more important, as a determinant of performance, as the race distance increases. Running economy exerts a major influence on performance across all race distances, whilst VO₂ kinetics is of minor importance.

2.12 Potential Impact of Other Determinants on Middle Distance Race Performance

Drafting

When one runner is running behind another, the resulting reduction in air resistance encountered by the following runner varies in relation to the distance between the two runners (i.e. the smaller the distance the greater the reduction in air resistance). However, there is a limit to how small this distance can be and this minimum distance between runners' increases with increasing running speed due to increases in the respective stride lengths of both runners. Kyle (1979) has suggested that a distance of 2 m between runners is realistic at middle distance race speeds, and with this spacing the following runner will experience a reduction in air resistance of approximately 40%. The VO_2 demand of a typical middle-distance runner to run alone on a track at 27 km(800m in 1:47) is h^{-1} and the rate of oxygen uptake required to overcome air resistance would decrease by $5.6 \text{ ml kg}^{-1} \text{ h}^{-1}$ (800m in 1:47) is $103 \text{ ml kg}^{-1} \text{ min}^{-1}$, of which $14 \text{ ml kg}^{-1} \text{ min}^{-1}$ is required to overcome air resistance. In contrast, if this runner ran 2 m behind another runner, air resistance would be reduced by 40% and the rate of oxygen uptake required to overcome air resistance would decrease by $5.6 \text{ ml kg}^{-1} \text{ min}^{-1}$ (i.e. 40% of $14 \text{ ml kg}^{-1} \text{ min}^{-1}$).

This, in turn, would allow the following drafting runner to sustain a high speed where the VO_2 demand would be equivalent $108.6 \text{ ml kg}^{-1} \text{ min}^{-1}$ (i.e. $103 + 5.6 \text{ ml kg}^{-1}$), or 28.1 km h^{-1} . This increase in sustainable speed from 27.0 to 28.1 km h^{-1} would decrease the 800 m race time from 1:47 to 1:43.

The influence of drafting on race performance is reduced as the race distance increases and the average speed sustained decreases. As the average speed decreases, so does the VO_2 demand required to overcome air resistance. This race in which drafting might potentially have its greatest impact is therefore the 400 m where the average speed sustained is the fastest of the middle-distance events. However, as the 400 m race is run in lanes, it is not possible for competitors to draft fellow athletes. Nevertheless, the impact of drafting on performance in the longer middle-distance

events is still significant, so it is important for a runner try and shelter behind other runners as much as possible in all middle-distance races from 800 to 3000 m.

Air Temperature

As discussed previously, the air resistance encountered by a runner is dependent upon air density, which is in turn dependent upon air temperature. The relationship between air density and temperature is given by:

$$\text{Air density} = \frac{1}{\text{Air temperature}}$$

Where air temperature is measured on the Kelvin scale and tempera in degrees Kelvin equals temperature in $^{\circ}\text{C}+273$. Seasonal variations in temperature, ranging from 0°C (Le. 273k) to 30°C (i.e. 303 k), will have commensurate effects upon air density. The air resistance encountered by a runner will be lower in higher temperatures, and though the real effects of changes in air density on race times are relatively small (independent of any seasonal variations in fitness), it is worth bearing in mind that it will always be harder to match summer race performances at colder times of the year.

Air Pressure

Typical air pressures range between 740 and 775 mmHg, a difference of 5% as, air density, and therefore air resistance, is directly proportional to air pressure; the air resistance encountered at race pace may also vary by approximately 5%. For example a 5%, decrease in air resistance could decrease 800 m race time by 0.7 s. In relation to 800 m race times, the impact of air pressure on performance is relatively small, though the practical significance is that it would be harder to achieve a personal best on a high-pressure day in comparison with a low-pressure day.

Effect of Wind

The wind encountered by a runner during track running will also exert and influence across all middle-distance events. The work that must be done by a runner to maintain race pace will increase when running into the wind and decrease when running with the wind. This work done can be translated into changes in the VO_2 Demand and

unfortunately these two opposing effects are not equal. Davies (1980) measured a runner's rate of oxygen uptake during treadmill running at a fixed speed with either a head wind or a following tail wind. Not surprisingly, oxygen uptake increased when running in to the wind, but this increase was found to be approximately twice as large as the reduction in oxygen uptake observed when runners ran with the wind.

The practical implication of these findings, especially with respect to track running on a windy day, is that a runner will not be able to accelerate sufficiently with the wind to compensate for the time lost when running against the wind. Consequently, it will always be harder to achieve a particular race performance on a windy day in comparison to a calm day.

Important Points

- The relationship between running speed and the energy requirements of contracting muscle is reflected in the relationship between running speed and the rate of oxygen uptake (Le. VO_2).
- Energy to fuel middle-distance running is derived from both anaerobic and aerobic metabolism.
- The total energy (oxygen) demand of race pace running is the sum of the energy required to run at a set pace on a treadmill and the energy required to overcome air resistance.
- The relative contributions of anaerobic and aerobic energy metabolism are dependent upon the race duration, which in turn is inversely related to running speed (race pace).
- The total amount of energy generated aerobically during middle distance running depends upon both $\text{VO}_{2\text{ max}}$, and VO_2 Kinetics.
- During optimal middle-distance race performance test, the runner's pacing strategy should be such that their anaerobic capacity will be exhausted as the race ends.
- The typical middle-distance runner will reach 94% $\text{VO}_{2\text{ max}}$ in the 800 m, 98% $\text{VO}_{2\text{ max}}$ in the 1500m, and 100% $\text{VO}_{2\text{ max}}$ approximately half-way through the 3000 m event.

- The amount of energy required to produce a given race performance must equal to the available effective energy, which in turn will determine the average race pace sustained.
- The air resistance acting against a middle-distance runner is proportional to their running speed-faster runners encounter greater air resistance.
- Air resistance is also influenced by local environmental conditions, being reduced when ambient temperature increases and air pressure decreases. A runner can reduce their air resistance by drafting behind fellow runners.

2.13 Predictive Testing Of Athletes

The United States has never had an organized system of identifying and selecting potential Olympic athletes at a young age. Due to the vast size and diversity of the United States and the lack of direct control over young athletes, this type of program has been viewed by the United States Olympic Committee (USOC) as unfeasible. Also, as long as the United States was winning the bulk of Olympic medals simply by “showing up,” most people considered talent selection unnecessary. Gerry Carr (1999) U.S.A track and field.

Times, however, have changed. No longer is it possible to dominate Olympic and World Championship competitions by simply “showing up” and bringing those who have filtered to the top of an event on their own. Other nations have improved their selection and training programs to the point that they are much more competitive.

The United States is no longer the dominant power that it once was. Canada, Great Britain, and several Caribbean and West African nations now provide real challenges in the sprints once a U.S. monopoly. Germany, the republic of the former Soviet Union, and several emerging nations remain strong in the field events. The most dramatic power shift, of course, is in the distance events, where Kenya, Ethiopia, and Morocco have namely eliminated the United States from contention in major international meetings.

In the 1970s and 1980, it was obvious that the Soviet Union and East Germany became very efficient in utilizing their countries talent, particularly in the explosive events, During these two decades, the two countries dominated the throwing and jumping events, especially in the women's competition, Did they have better talent than the United States, or did they simply do a better job of identifying the athletes with talent and involving them in sport at younger ages: It is obvious that the talent pool of the United States was greeted than that of east Germany, and that the talent levels in the United States probably were higher due to its higher standard of living, when compared with that in the Soviet Union or the German Democratic Republic, Therefore, we can assume that one Key area where the United States faltered was in identifying talented athletes and directing them.

One of the great historical strengths of U.S, track and field has been its close connections with the education system, Most youngsters become involved during their Junior high school or senior high school days and then continue on through college of university and on the national teams, Although the U.S. education system has served the sport of track and field well during this century by providing competitive opportunities, facilities, professions coaching, and even college scholarships, these contributions also can be a source of weakness for the sport, for the following reasons:

- High school or even junior high school maybe too late in some sports or events to initiate involvement, where would gymnastics of swimming be if athletes' first competitive opportunity came at the high school levee?
- The school calendar usually ends in May or early June, which often results in short competitive seasons, what happen during the remainder of the year?
- What happens when athletes finish their education or complete their eligibility? Unless they have achieved a world-class level of performance already, they probably face and early I'll to their competitive earners.
- Most importantly, what happens to those young people who do not migrate naturally toward track and field? How many young people become involved in drugs, gangs, or even menial part-time jobs in place of athletics?

The 15-year-old boy who is 6 feet, 8 inches (about 203 cm) tall will probably be directed in to basketball in most schools, Likewise, the young Man who is 6 feet, 2 inches (about 88 cm) tall and weighs 240 pounds (about 109 Kg) will probably be encouraged to play football by coaches and peers, However, what about the average-sized boys and girls walking the halls of U.S, elementary and secondary schools? Without daily physical education, most youngsters with exceptional physical talent simply go unnoticed in the Scholl systems: there is an alarming trend to abolish physical education at this level. Unless young people or their parents initiate involvement in the school's track and field team, most coaches have no way of identifying the talent at their disposal. The problem in the United States has been magnified in recent years by an increasing reliance upon part time coaches. Junior high and senior high school coaches who do not teach in the same building or even in the same system as their coaching assignment are at a distinct disadvantage when it comes to recognizing and recruiting young student athletes, This situation is further complicated by the fact that the United States, unlike many European countries, does not have a strong system of sports clubs to augment the role of the education system in providing track and field opportunities. IAAF publication magazine Swizerland(2007)

2.14 Talent Evaluation Program

What the United States needs is an organized, boras-based system of identifying young people with exceptional talent at an early age. Obviously, some areas such as endurance and static strength can be developed through raining and hard work, However, other areas such as speed and explosive power are largely innate and may be closely related to muscle fiber type cannot be readily changed through training. Muscle fiber type may be a determining factor in events requiring speed and explosive ability, performance potential can be identified through 11 fairly simple measurements and field test.

The United States has several widespread testing programs that encourage physical fitness, The American Association of Health, Physical Education, Recreation and Dance (AAHPERD) test and the president's test for physical Fitness are the most common, These tests, however, are not designed to detect explosive strength, the main

ingredient in most track and field events and the one most closely associated with muscle fiber type.

The proposed talent evaluation program would be administered much like a physical fitness test and 11 Ouida use existing sports clubs, parks and recreation programs, sports camps, and school physical education classes as testing venues, The test results would be compiled and standards established for gender and age in each test category, Young boys and girls who scored well on the field test would be encouraged to become involved in track and field, The test results also would be used to recommend the event area in which an individual should concentrate, These tests have been shall to predict actual performance levels, once youngsters haw learned basic technique. This phase has been particularly useful in motivate young athletes to strive to achieve their theoretical potential.

Recent studies conducted at Indiana University with the help of a USA Track and Field grant revealed that it is possible to accurately predict performance in selected track and field events using relatively simple field test. The results are most accurate when the athlete already has some experience in the competition event that he or she is expected to perform, Further studies using the same field tests should help identify what additional events would be best for the athlete

2.14.1 Performance Tests

The tests used in the following talent evaluation procedures war selected both for their ability to effectively help predict future track and field performance(s) and for their ease of application. These tests generally are well known and can be readily executed using a minimum of equipment and evaluators. This enhances the use of this test battery in the field.

Eleven criteria are evaluated during the testing

1. Height
2. Weight
3. Body composition
4. Standing long jump
5. Vertical jump
6. Five bounds for distance
7. Sixty – meter dash from a standing start
8. Thirty –meter dash from a standing start
9. Thirty – meter dash from a moving start
10. Stride frequency during 3D –meter dash from a moving start
11. Stride length during 3D meter dash from a moving start

Equipment

To perform the track and field prediction test, the following equipment is needed:

- Clipboards
- Pencils
- Data recording forms
- Measuring tapes for imperial and metric systems
- Four stopwatches
- Skin fold calipers
- Vertical jump board
- Scales

Testing Procedures

Performance tests are given in the same order for all athletes to eliminate any possible order effect. Except for the anthropometric measures (height, Weight, %body fat), all tests are given twice and the best trial is used in the calculation. The following outlines the proper procedures for performing each test.

Height

- Measure height in inches, with the athletes standing position flush, against a vertical surface.

Weight

- Measure such athlete's weight in pounds. Their shoes should be taken off prior to the test.

Body composition

Each athlete's body fat percentage will be determined by skin fold measurements using calipers, for female athletes, measurements are made at the iliac crest and at the triceps, for males, the measurements are on the quadriceps and sub scapular. The following are the specific procedures for this test;

1. Place the thumb and forefinger of the left hand far enough apart that a fold of skin can be pinched up firmly and clearly from the underlying tissue.
2. Firmly hold the fold between the fingers while the measurement is made with the calipers.
3. Apply the calipers to the fold between the fingers so that the pressure at the point is exerted by the caliper faces, not the fingers. Readings to the nearest half-millimeter are adequate.

Sixty – Meter Dash

From standing position the athlete starts at will and two timers are positioned at 60 meters. The fastest of the two times is used, and is recorded to 1 second equipment needed is stopwatches.

Standing 30 – Meter Dash

During the 60 –meter dash (above), two timers are positioned at 30 meters. The faster of the two times is used.

Flying 30 – Meter Dash This measurement is taken “on the fly,” or from a moving start. The time from the above 30 –meter dash is subtracted from the final 60-meter time and is recorded to 1 second.

Stride Frequency

The number of times a step is taken with a particular leg between 30 meters and 60 meters is ascertained, using two counters (one counter per leg). Add number of steps taken for each leg and divide total by flying 30-meter dash time.

For example, 8 with right leg + 7 with left leg = 15 strides.

15 strides divided by 5.0 seconds between 30 and 60 meters = 3.00 strides per second.

Case Study

To better understand the testing protocol a hypothetical situation will be presented. John Doe of State University is being tested by the coaching staff to evaluate his potential. The following are the results of his testing:

Height: 6 feet, 3 inches = 75 inches

Weight: 200 pounds

Body composition: subscapular 12 millimeters, quadriceps: 9 millimeters, Estimated body fat from tables = 10.2 %

Standing Long Jump: Trial 1: 9 feet = 108 inches, Trial 2: 9 feet.1 inch = 109 inches (use 109 inches). Vertical Jump: Trial 1: 28 inches. Trial 2: 30 inches (use 30 inches)

Five Bounds for Distance: Trial 1: 50 feet, 1 inch = 601 inches. Trial 2: 49 feet. 10 inches = 598 inches (use 601 inches)

Sixty- Meter Dash: Trial 1: 7.5 Seconds, Trial 2: 7.4 Seconds (use 7.4 seconds)

Standing, 30- Meter Dash: Trial 1: 4.0 Seconds. Trial 2: 4.9 Seconds (use 3.9 seconds)

Flying 30-Meter Dash: 7.4 seconds - 3.9 seconds = 3.5 seconds

Stride Frequency: 15 strides divided by 3.5 seconds = 4.29 strides per second

Stride Length: 30 meters divided by 15 strides = 2.00 meters = 78.75 inches

Stride Length

The stride length is taken from the flying 30 –meter dash. It is the number of strides from 30 meters to 60 meters divided in to 30.

For example 8 with right leg + 7 with left leg = 15 strides.

30 meters divided by 15 strides = 2.00 meters = 78.75 inch stride length.

Once a point total is generated, multi-event tables are used to estimate performance in the selected even! These tables are used for scoring the decathlon, heptathlon, and other common track and field events. If John Doe is a long jumper, that point total would equate to a predicated performance of 7.42 meters. You simply go to the decathlon tables (or heptathlon tables for women) and look up the event for which the athlete is being evaluated. (See table 2.1) In this case “the coach would look at the long jump category and find John Doe’s test score of 915 points. The performance next to that score is the predicted performance for the athlete-7.42 meters. Statistically one can be confident that the true potential is ± 110 points. In other words, one can be 90% confident that Doe can jump between 6.83 meters and 7.98 meters.

The formula just explained obviously is unwieldy. A more efficient but less accurate equation for male athletes is the following:

$359.22 + (6.42 \times \text{Vertical Jump}) + (3.58 \times \text{standing Long Jump}) + (61 \times \text{Five Bounds}) + (113.49 \times \text{Standing 30 meters}).$

This equation yields a 68% confidence level of ± 118 points and a 90% level of ± 151 points.

Table 5 That Show Explosive Performance Summaries

	Males		Females	
	13-14 yrs.	15-16 yrs.	13-14 yrs.	15-16 yrs.
60m	8.0-7.6 sec	7.8-7.4 sec	8.7-8.3 sec	8.5-8.1 sec
Standing 30m	4.5-4.3 sec	4.4-4.2 sec	4.7-4.5 sec	4.6-4.4 sec
Flying 30m	3.5-3.3 sec	3.4-3.2 sec	4.0-3.8 sec	3.9-3.7 sec
Stride frequency	4.3-4.7 stride/sec	4.3-4.7 stride/sec	4.0-4.4 stride/sec	4.1-4.5 stride/sec
Stride length	2.09-2.15 m	2.13-2.20 m	1.90-1.95 m	2.05-2.13m

Table 5 Explosive performance summaries

Bounds it would appear that increased explosive strength and the subsequent increase in stride length are the best means to greater running speed. As an example, if Jane Doe improved her stride frequency from 3.0 to 3.5 strides per second, her predicted long jump performance would improve approximately six inches (about 15cm).

Table 5 indicates exceptional performance in the explosive tests for ages 13-16. IAAF youth project proposal congress in Paris(2003). Athletes achieving these marks should rank in the top 10 percent for these age groups. This type of ranking would indicate a strong possibility for future success in track and field events requiring speed and explosiveness.

2.15 The Middle Distance Race (800 Meters and 1500 meters)

The middle-distance events include the 800-meter run, the mile run, and all distances in between-including the 1500 mete-. That the 800 meter would record is now 1:41 indicates that races of these distances are very demanding, requiring a mixture of speed, strength, and endurance. The athletes who succeed can give it their all on race day, but also can really let it hang out on key practice days.

Besides the physical skills that are needed to perform successfully in this event category, mental strength is essential to run at high speeds for the duration of the race. You must have courage to keep going while your coach is telling you it's going to be painful to continue at such intensity. That courage is developed during training. Practices are aimed at not only building the necessary stamina for these races, but developing the confidence to persevere as well. IAAF middle and long distance manual(2007)

2.15.1 Selection Process

The middle distances have always been among my favorite of the track events to coach. I always felt I could influence the existing talent pool somewhat, especially when I was coaching in high school. Since I enjoyed the middle-distances events, I would in some cases try to move the sprinters and 400-meter runners to the 800 meters and mile at an early age. Then I would convince them to try cross-country in the fall-as a way of establishing contact and, more importantly, to get them to make the tough mental adjustment from the sprints to the middle distances. With this task accomplished, I usually had a pool of athletes that was signing I faintly faster than most of our opponents.

When selecting candidate for the middle-distance races, be sure to take into consideration the athletes work ethic. If your chosen candidates don't truly love running and enjoy hard training, they will not survive in the middle distances.

2.15.2 Physical Traits

Another consideration is the physical traits of middle-distance runners. It is believed that the successful middle-distance runner will have a ratio of fast –twitch to slow-twitch muscle fibers of about 50:50, with a 5 to 10% deviation either way. For example,

The ideal 800-meter prospect would probably be at 60% fast twitch and 40% slow twitch. A miler might be 60% slow twitch and 40% fast twitch. A good, stable team of middle – distance runners will all fall somewhere in between these 60:40 or 40:60 ratios.

The problem is how to know an athlete's muscle fiber type. College coaches get their athletes into the university physiology lab for a muscle biopsy. However, this may not be available to you. In this case, the vertical jump test may help.

2.15.3 Vertical Jump Test

Simple but fairly accurate gauge in determining aptitude for middle-distance running is a vertical jump test. Once the athletes are in pretty good shape, have each one take a two-inch piece of chalk and stand flatfooted against a wall; they are to reach as high as possible and make a mark on the wall. Next, while starting from a flatfooted position with both feet on the floor, they are to jump up and make a mark above the original mark. Have them do this three times. Measure the distance between the standing mark and the jumping mark, and average the three marks.

After you have the results of all your team members, divide the group. The third with the highest marks will make up the sprinters. The middle third are likely to be most successful at the middle distances. The long-distance group will likely come from the last third, if you have a large group; there is a lot of validity in this test.

This is only a quick guide and should not alter other selection criteria established by the coaching staff, but it is a good indicator of your athletes' muscle fiber type. In the final analysis, however, your candidates must also have good body.

2.15.4 Types of Middle –Distance Runners

There are basically three types. Of 800-meter runners (The same profiles will also be used to identify 1500-meter (and mile runners.)

1. Those possessing exceptional speed for 400 meters who move up to the longer distance.
2. Those that are gifted with better than average 400-meter speed and also compete successfully in the mile.
3. Runners with average 400-meter speed who are mainly the miler type, but yet because of superior conditioning are able to compete quite well at 800 meters.

They are especially effective in championship meets where several rounds of qualifying are required.

Technique

Postural and mechanical considerations for the middle distances will vary slightly between the 800 and 1500-meter runner/miler. Both will run with very erect posture. The head should be level with the eyes focused 50-100 meters down the track. Make sure athletes do not look down at their feet.

The rhythm of the stride cycle is similar to that of a sprinter, except that since running economy dictates a short stride, the heel recovery after the drive foot lifts from the ground will not raise all the way to the hips. It will recover to only about, three-fourths of that distance for the miler when it starts to descend forward. The 800-meter athlete will look more like the 400-meter sprinter with fairly high heel recovery.

Both athletes will pass the free leg forward and downward, and move the foot back under the body's center of mass upon landing. Since the middle distance runner is moving at a slower rate and the sprinter, the body doesn't pass over the support foot as quickly and the foot can land almost directly under the center of mass.

Dorsal flexion of the ankle joint is still an important issue to keep the athlete rolling off the ball of the foot. As the athlete's foot lands nearly flat-footed for the 1500-meter runner/miler, the athlete should propel forward off the ball of the foot. The 800-meter athlete will land higher on the ball, but then drop the foot flat at the point of mid support just before propelling off the ball of the foot again.

The arm carriage for the 800-meter athlete is very similar to that of the hands should be relaxed and swing forward to the midline of body, but without crossing the midline. The hand will swing about chin high with the elbow bending to less than 90 degree. On the downswing, the hand moves back toward the hip pocket as the elbow opens to about 120 degrees.

The miler, on the other hand, will have a shorter arm stroke due to a shorter stride. The motion should be in the same direction to the midline but not crossing it.

In both races, the shoulders should remain level and perpendicular to the direction of the run. No twisting back and forth of the torso should be observed. When watching the motion of the athlete's body at the top of the head, you should not see much up and down motion (vertical displacement.)

2.15.5 Training philosophy

We must always guard to gains training absorbing too much of an athlete's competitive fire some athlete (become workout centered, so that workouts take on more importance than actual racing.

For this not to happen, we must address all facets of the athlete. People are three-dimensional: with a physical side, a mental and emotional side, and a spiritual side. A proper training program must include components of all three dimensions.

Training itself must be multifaceted. Keep in mind that everyone can dramatically improve his or her relative running speed, power, flexibility, endurance, strength, self-image, and self-confidence. Just think what the result would be if all of the components were improved, finally, as in most physical activities, Middle-distance training is a learning process. This learning comes from event-specific training, from training that involves all of the energy systems, and from training that teaches the mental aspects of toughness and competitive spirit.

2.15.6 The physical side:

The physical dimension involves not only proper training but understanding the race and the tactics specific to that race.

When planning race tactics, the following factors should be considered:

- Distance of the race
- What you know about the opponents in the race
- Condition of the racing surface
- Weather
- Current physical condition

- Level of training of rivals
- Personal ability, strengths, and weaknesses, including pace judgment and ability to lead or follow
- Number of competitors in the race

Remind your athletes of the following: Save about 40% of your energy for the last one-quarter of the race. Expect the unexpected. Never take the lead unless you want to do something with it. You might wish to increase the pace, decrease the pace, or to gain tactical position. It is also critical to maintain contact if you are not. Reading, Contact refers to your effective striking distance or believable passing, distance.

Other key components of training are recovery and proper rest. When training loads are applied, there must be sufficient recovery time for the body to adapt, resulting in greater fitness. Insufficient recovery will lead to physical break down, injury, or illness.

2.15.7 The Mental and Emotional Side

On the mental and emotional side of training, you and your athletes must always have a plan or a road map of where you want to go. This should be supported by a set of vivid goals that provide for immediate, short-range, midrange, and long range planning. Remember, the greatest motivation is a series of achievements or accomplishment.

The higher your athletes' performance goals are, the more subsidiary goals-they must have. For example, if the goal is to increase training load by 10%, then you need a series of goals that provide the athlete with more sleep, more recovery, improved diet, and dehydration. You must also address the habits that help your athletes reduce and manage stress, and your athletes need a refocusing plan in case the unexpected happens:

Your athletes have to expect the unexpected. If it does occur, how are your athletes going to prepare themselves mentally and physically?

Ask them to think about how they would deal with the following:

- Pre-event hassle
- Delay in start
- Loss of focus
- Poor performance

These things happen; so there must be a plan to handle them.

Remember that the ability to concentrate is one of the final pieces to the complete jigsaw puzzle we are trying to piece together. Task is critical for ultimate success. If you're if your athletes don't have the ability concentrate of focus on the assigned task, they run the risk of waiting all the previously learned skills.

2.15.8 The Spiritual Side

The spiritual side of training deals with intangible qualities the athlete may not possess. For example, drive, desire, belief, confidence, and commitment are vital to success. Roger Bannister said, "The better for the first sub 4 minute mile was fought in the mind, not in the body"

The spiritual side of athletics finally comes down to the competitive spirit athletes can muster in important situations. Of all traits, this is the most internal generated. The athletics must have and inner resolve that sparks this dimension is also fed by the enthusiasm, emotion, and inspiration previous achieve and conquests. This spirit is continually fueled by the energy the athlete can draw from those around him or her. With awareness and understanding of this spirit, it can be heightened and improved. The correct belief system and environment can improve the oversell of the soul.

2.16 General talent evaluation program

It is broad bared system of identifying your people with exceptional talent in the early age. Obviously, some areas such ascendance and static strength can be developed thorough training and hard work. However other areas such as speed and

explosive power are largely innate and may be closely related to muscle fiber types cannot be readily changed through training muscle fiber types may be a determining factor in events requiring Speed and explosive ability, Performance potential field and tests.

The field test has several wide spread testing programs that encourage physical fitness. The American Association Health, physical Education, Recreation and Dance test and test for physical fitness are the most common. These tests, however are not designed to detect explosive straight, the main ingredient in most track and field events and the one most closely association with muscle fiber type.

The proposed talent evaluation program would be administered much like a physical fitness test and would use existing sport clubs, part and recreation programs, sport camps, and school physical education classes and testing venues. The test result would be compiled and standard established for gender and age in each test category young boys and girls who scored well on the field test would be encouraged to become involved in track and field. The test results also would be used to recommend the event area in which an individual should concentrate. These tests have been shown to predict actual performance levels, once young stars have learned basic technique. This phase has been particularly useful in motivating young athletes to achieve theoretical potential.

Recent studies conducted at Indiana university with the help of a USA that and field grant revealed that it is possible to accurately predict performance in selected track and field events using relatively simplified tests. The results are most accurate when the athlete already has some experience in the competition event that he or she is expected to perform. Further studies using the same field tests should help identify what additional events would be best for the athlete.

CHAPTER THREE

METHOD AND PROCEURE

This chapter deals with research design and methodology, source of data, sample and sampling techniques, instrument of data collection, procedure of data collection and method of data analysis.

3. RESEARCH DESIGN AND METHODOLOGY

3.1 RESEARCH METHODOLOGY

The research methods selected for this study is descriptive survey research since the aim of the research is up to describing facts and telling on the existing condition of the issue under discussion, i.e. practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian Athletics Federation.

3.2 SOURCE OF DATA

The primary sources of data were for this study is, Middle distance race Athletes, middle distance race coaches, administrators of clubs and Ethiopian athletics federation. The secondary sources are Legal documents, internets, relevant books, IAAF coaching manuals and Journals and other important issues those are constrictive to the topic under study.

3.3 SAMPLE AND SAMPLING TECHNIQUES

For the specific research the following samples were selected using both probability (simple random) and non probability (purposive) sampling.

This study was conducted on 7 Addis Ababa athletics clubs, namely Maremiya, Defence, Oromiya police Muger, EELPA, Ethiopian bank, Omedela and Tiruneshe Dibaba athletics center out of Addis Ababa purposefully. The target population consists of Ethiopian athletics federation's officer, club administrators, middle distance athletes and middle distance coaches were used as a source of data for the purpose of the study. Therefore from different first division clubs of Addis Ababa 7 of them were taken as a sampling and from the list of 8 athletics club 70 middle distance

athletes (simple random), 15 coaches (purposive), 9 club administrators(purposive) and 4 Ethiopian athletics federation officer (purposive).

3.4 INSTRUMENT OF DATA COLLECTION

For the specific study, the following data collection instruments were used based on their appropriateness.

Questionnaires that presented to the respondents are close ended, interviews are open ended and formal and also document analysis is documented at clubs and federations analyzed.

3.5 PROCEDURE OF DATA COLLECTION

In conducting the study, the following relevant procedures in collecting data were used. First relevant data was assessed to get information from what have been done from in relation to the problem.

Second before distributing the prepared questionnaire to respondents it was tested as a pilot at the club level with relevant athletes and coaches. Then the questionnaire was revised depending up on suggestion collected during the try out and administer the concerned respondents so that they will fill and return them back. In administering the questionnaire research assistants had the necessary orientation on how to distribute and collect questionnaire. A prior contact was made with respondents to ensure willingness to participate in the study and to maximize the return rate of questionnaire. Interview was held at the respondents' work place.

3.6 METHOD OF DATA ANALYSIS

The information obtained from the opinion gathered through questionnaire were structured, organized and framed to suit analysis and inference of conclusion. When interpreting the data simple statistically percentage was used to questions that require quantitative measurements and description were used to qualitative measurements. Accordingly some tables were used in tabulating the results. Finally based on the findings and conclusions reached, recommendations are proposed as research output.

CHAPTER FOUR

4. ANALYSIS AND INTERPRETATION OF DATA

This chapter discussed about the analysis of the research, interpretation and questions of the findings of the study.

Results obtained from middle distance athletes, middle distance coaches, club administrators, athletics federation officer, and also results from document analysis are tabulated and interpreted as follows.

1. Questionnaires filled by middle distance athletes

Q. 1. How do you join the club?

No	Options	%
1	By recruitment criteria	16
2	After winning the competition	84
3	By having relationship with coaches	0
4	By chance	0

Table -1- Joining the club

According to the above table 16% of the respondents replied that they have joined their club by fulfilling the given recruitment criteria's, where as the other 84% joined the club after winning the competition.

-Q. 2. What is your level of interest in middle distance event?

No	Options	%
1	Excellent	12
2	Good	16
3	Poor	72

Table -2- Level of interest in middle distance event

According the above table 72% of the respondents responded that, their interest in middle distance event is poor, whereas, 16% replied that they have a good interest in the event and 12% of the respondents said that they have an excellent level of interest in their event.

-Q. 3. Have you ever taken any test to determine your potential in middle distance event?

No	Options	%
1	Yes	22
2	No	78

Table -3- Test to determined potential for competing discipline

As it is indicated on the above table 78% of the respondents replied that they have never taken any test to determine their potential for their competing discipline where as 22% of the respondents replied that they took a test i.e. Competition.

-Q. 4. Did anyone advise you to choose the event you are competing currently?

No	Options	%
1	Yes	76
2	No	24

Table -4- Any one advise you to choose the event you are competing currently

According to the above table 76% of the respondents responded that they are advised to choose the event they are competition currently while 24% of the respondent said that they are not advised to choose the event that they ate competing currently.

-Q. 5. Who motivated you to choose the discipline you are competing?

No	Options	%
1	Coaches	32
2	Role models	18
3	Economic reward of the discipline	50
4	I Don't now	0

Table -5- Motivation to choose the discipline

According to the above table 50% of the respondents replied that they are motivated towards the discipline competing currently is economic rewards of the discipline, 32% of the respondents said they are motivated by their coach, while 18% of the respondents said that they are motivated by the role models.

-Q. 6. Do you have a plan to shift to another event?

No	Options	%
1	Yes	81
2	No	19

Table -6- a plan to shift to another event.

As it is indicated on the above table 81% of the respondents replied that they are planned to shift to another event, while 19% of the respondents said that, they are happy with the event they are competing.

-Q. 7. Do you think your friends are satisfied in middle distance race?

No	Options	%
1	Yes	24
2	No	76

Table -7- satisfaction of friends in their competing distance.

As it is indicated that above table 76% of the respondents said that their friends are not satisfied with the distance they are competing whereas, 24% of the respondent replied, that their friends are satisfied with the distance they are competing.

-Q. 8. Do you have any doubt that you hadn't do regarding choosing the distance you are competing?

No	Options	%
1	Yes	86
2	No	14

Table -8- Doubt that you hadn't do regarding to choose the distance you are Competing

According to the above table 86% of the respondents replied that they doubts that they hadn't that they hadn't do regarding to choose the discipline they are competing while 14% of the respondents have nothing to doubt.

-Q. 9. Do you have any other event you would be successful if you were got a chance?

No	Options	%
1	Yes	87
2	No	13

Table -9- Other competing event you would be successful if you were got a chance.

As it is indicated on the above table 87% of the respondents replied that they think that they will be successful, if they were got a chance to compete in other event, while 13% of the respondents said that they don't have another event they would be successful.

-Q. 10. Is the distance you are competing the only and the first choose you picked?

No	Options	%
1	Yes	38
2	No	62

Table -10- the distance you are competing the only and the first choose you picked.

According to the above table 62% of the respondents responded that they their competing distance which is not their first and only choice they picked, where as 38% of the respondents said that the distance that they are competing is the only and first choice.

-Q 11. Have you ever taken any sport discipline as a career before?

No	Options	%
1	Yes	60
2	No	40

Table -11- Taking any sport discipline as a career before

As it is indicated on the above table 60% of the respondents replied that they had taken another sport discipline as a career before, while 40% of the respondents said that they have never taken any sport discipline as career before.

-Q. 12. Does the training program in your club consider the age difference?

No	Options	%
1	Yes	10
2	No	90

Table -12- considering the age difference in the training program

According to the above table 90% of the respondents replied that the training program doesn't consider the age difference, where as the other 10% of the respondents said that the training program does consider the age difference.

2. Questionnaire filled by MDR Coaches.

-Q 1. What is your level of qualification?

No	Options	%
1	PHD	0
2	MSC	2
3	BSC	13
4	Diploma	15
5	Certificate	20
6	Other (12 completed and blow)	50

Table -13- level of qualification

According to the above table 50% of the coaches are 12 completed and blow , whereas 20% of the respondents are received a coaching certificate that is given from the national federation 15% of the coaches are diploma holders,13% of the coaches are BSC holders and 1% of the coach is MSC degree graduate.

-Q. 2. Who recruit athletes to your club?

No	Options	%
1	Coach	11
2	Club offices	89
3	Athletes	0
4	Other	0

Table -14- Recruit athletes to the club

As it is indicated on the above table 89% of the respondents replied that club officials are responsible for recruiting new coming athletes to their club, where as 11% of the respondents said that coaches are responsible for recruiting the athletes.

-Q. 3. What are the criteria for athletes to join in your club?

No	Options	%
1	Based on their interest	0
2	By winning the competition	90
3	By athletes physical status	10
4	By passing talent identification test	0
5	Others	0

Table -15- the criteria for athletes to join the club

According to the above table 90% of the respondents replied that the criteria for joining their club is winning the competition, on the other hand 10% of the respondents said that the criteria for joining the club is just having an observation on athletes physical states

-Q. 4. Do you consider age limits to attend the specific discipline?

No	Options	%
1	Yes	28
2	No	72

Table -16- considering age limits to attend the specific discipline

According to the above table 72% of the respondents replied that they don't consider the age limit to attend the specific discipline, while 28% of the respondents said that they consider age limit to attain to the specific discipline.

-Q. 5. Are you satisfied with the performance progression of your athletes?

No	Options	%
1	Yes	36
2	No	64

Table -17- Satisfaction with the performance progression of athletes

According to the above table 64% of the respondents replied that they are not satisfied with the performance progression of their athletes, while 36% of the respondents said that they are satisfied on the performance progression of their athletes.

-Q. 6. How well your athletes respond to training?

No	Options	%
1	Excellent	0
2	Very good	14
3	Good	26
4	Poor	60

Table -18- Athletes respond to training

As it is indicated on the above table 60% of the respondents replied that their athletes have poor response on training, where as 26% of the respondents replied that the training response of their athletes are good and 14% of respondents said, their athletes are very good on respond to a training.

-Q 7. Do you consider the athlete's age difference in the training program?

No	Options	%
1	Yes	35
2	No	65

Table -19- consideration of age difference in the training program.

According to the above table 65% of the respondents replied that they don't consider the age difference in the training program while 35% of the respondents consider the athletes age difference in the training program.

3. Questionnaire filled by MDR club officials

-Q. 1. Do you have any criteria to hire new athletes to your clubs?

No	Options	%
1	Yes	75
2	No	25

Table -20- criteria to hire new athletes to the club

As it is indicated in the above table 75% of the respondents replied that they don't have criteria for hiring a new coming athletes, while 25% of the respondents said that they have a criteria of hiring a new athletes to their club

Q. 2. Do you believe all of your MDR athletes are satisfied in their field?

No	Options	%
1	Yes	32
2	No	68

Table -21- satisfaction of athletes in their field

According to the above table 68% of the respondents believe their MDR athletes are not satisfied in their field where as 32% of the respondents said that they believe their MDR athletes would be satisfied in their field.

-Q. 3. Do you usually identify talents of new athletes to join in your club?

No	Options	%
1	Yes	29
2	No	71

Table -22- Identify talent of new athlete to join the club

As it is indicated in the above table 71% of the respondents replied that they do not identify the talents of the new coming athletes to join their clubs, where as 29% of the respondents responded that they identify the talent of the new coming athlete to join their club.

-Q. 4. What is the rate of athletes drop out in your clubs?

No	Options	%
1	High	61
2	Fair	0
3	Low	39
4	No drop out	0

Table -23- Rate of athlete's dropout in the clubs

According to the above table 61% of the respondents replied that the rate of athletes dropout is high, 39% of the respondents responded that the rate of athlete's dropout is low.

1. Interview for MDR coaches.

Q. 1. What is talent?

-Most of the coaches agreed that talent is a gift that helps to win the competition and having a good technique of running.

Q. 2. What is the minimum age that athletes start novice training in your club?

-The majority of the respondents said that it is difficult to know the exact age of their athlete. According to the respond of the coaches age is not as such a determinant or important criteria to join the club as far as the athlete has a good result and performance can join the club.

Q. 3. How do you identify talented athletes of MDR?

-All of coaches agreed that they select talented athletes by their result in the competition held in the country.

Q. 4. What factors contribute for poor performance progression of athletes?

- Training conditions.
- Scarcity of materials equipments and facilities.
- Lack of proper nutrition.
- Inconsistence in training performance
- Lack of identifying of athletes

Q. 5. What conditions do you think that contribute for athletes poor response to training?

- Unplanned and unsupervised training program.
- Lack of appropriate training materials, equipments and facilities.
- Lack of food, sanitation and health care etc.
- Problem of selecting the right athlete to the right event.

2. Interview for club officials.

Q.1. how well new athletes adapt trading loads in your club?

-The club officials responded to this question that new coming athlete are started training with experienced athletes in the club and gradually adapt the training load.

Q. 2. What is the reason your MD athletes are not successful in the field?

On the bases of various reason athletes are not willing to stay in one discipline in the club and they shift from club to clubs

Q. 3. What is talent for you?

-Most club officials agreed on talent is a potential of an athlete to win the competition in a good performance.

Q. 4. Who select /recruit athletes to your club?

-Most of the club officials responded to the above question we are responsible for recruiting new athletes with the coaches, whereas, some said that by the recruiting committee.

Q. 5. Why your athletes shifting from one discipline to another in your club?

-Most club officials agreed on: Athletes are shifting from one discipline to another discipline because of loss of result and motivated by the economic rewards of the discipline.

3. Interview for Ethiopian athletics federation officials

Q. 1. Does Ethiopia have a talent identification system in different clubs?

-The officials concluded that there is no talent identification system in the clubs; they use competition as a means of talent identification.

Q. 2. Do you think clubs are using effective mechanism to recruit athletes?

-The officials responded that there was mechanisms of recruiting athletes in the past around 1990's E.C when athletes are joined the athlete's project on its

establishment. But currently except Tirunesh Dibaba athletics center there is no club in the country that uses effective mechanism of recruiting new coming athletes.

Q. 3. Are you in favor of the idea to recruit athletes based on competition result?

-The officials agreed that competition result is not the only way of determining the performance of the athlete even though clubs are using competition to hire new athletes.

Q. 4. Do you give any training for different athletics clubs how they identify the athletics talent?

-The officials replied ,we have already planned to give training for this currently existing problems of talent identification on the basis of kids athletics coaching IAAF course but also the officials strengthen the point of, clubs of athletics in the country should provide this coaches all the proper training /courses so that they can improve their knowledge of coaching.

Q. 5. What is your view of talent identification process in Ethiopia athletic?

-The officials strongly agreed that the country suffered a lot on not having the process of talent identification mechanism as well as talent development center. It is very important to minimize the wastage of the coached and athletes time in the process.

Q. 6. What sport of talent identification method you suggest for Ethiopian athletic clubs?

-The officials responded that clubs should use a variety of talent identification methods /testes/ beyond competition, like training the kids in order to identify their talent according to talent development.

Q. 7. What solution you suggest to alleviate those problems?

-The officials agreed that all the sport officials of the regional state should be aware of the importance of talent identification and do all the best on the establishment of athletics project where the talents of kid athletes are identified and given training. The athletics federation, as a part of responsible of the problem must has to give different trainings /courses about talent identification

Q. 8. Who is responsible to the problem of talent identification in Ethiopia?

1. All officials agreed that Ethiopian Athletics federation in particular, all clubs and concerned athletes sport professionals are responsible, in addition
 - Killel sport Bureaus
 - Woreda sport Bureaus
 - kebele sport Bureaus

Q. 9. What sort of mechanisms should be taken to come up with remedial solution for talent identification problems and athletes personal choice of events?

The mechanisms are:-

Talent identification criteria should be designed in every clubs

Recruitment criteria should be sated

The athletes' interest should be considered....etc

- The officials concluded by giving the remedial solutions.

All the concerned persons and organizations should be a part of solutions.

a. The Federation

- The federation should create awareness on the importance of talent identification.
- The federation should train coaches both in the country and sending them outside for long and short term training courses.
- The federation should formulate a mechanism of the countries talent identification methods and control all the training given on the clubs.

- Support the clubs to establish rules as to overcome the shifting of athletes from discipline to discipline.

b. The Club

- The club should provide coaches with different self development course.
- The club should give professional freedom to every professional and avoid interference during decision making.
- The clubs should establish rules that govern the athlete's prevent shifting from discipline to discipline.
- The club should formulate criteria of recruiting athletes to specific discipline.

c. The coach

- The coach should train an athlete after making sure that he/she is identified the talent.
- The coach should update themselves with specific training methods.
- The coach should give a professional advice to athletes to continue their training in a stable manner, do not shift from club to club to club unreasonably.

4.1 Discussion of the Findings

4.1.1. Talent identification procedures and clubs Criteria to recruit athletes

As it is shown in **table 1**, 86% of the respondents replied that athletes joined their club after winning a completion. In **table 3**, 78% of the athletes responded that they haven't even taken any test to determine their potentials for their competing discipline. Regarding the point under discussion 76% of the athletes, in **table 4**, replied that they are advised by someone else to choose their completing discipline after they joined the club, on the other hand, the 89% of the coaches replied, in **table 14**, club officials have a power to recruit athletes in the club, 90% of the coaches replied, in **table 15**, that the criteria for join their club is winning a competition, and 72% of the coaches, in **table 16**, agreed on their club don't consider age limit to attend specific discipline.

On the part of club officials 75% of them, **in table 20**, said their club have no criteria to recruit new athletes 70% of the officials replied no to the question do you usually identify talent of your athletes of join your club?

As it is shown in the interpretation part the federation officials confirmed that the country has no talent identification protocol, so does the clubs. And these officials do not believe clubs are using effective mechanisms to recruit athletes. On the interview part the Ethiopian athletics federation believes that the country's talent identification protocol is hard to comment on because it doesn't exist at all.

4.1.2. Knowledge of coaches and their attitude toward talent identification of athletes

In table 13, it is indicated that only 1% of the coaches have MSC degree while 50% of them are 12 completed and below. **In table 14**, 89% of coaches pointed that club officials have more power to recruit athletes to their clubs, **in table 15**, 90% of the coaches replied that they use competition as a method to recruits athletes.

For the question what is talent for you, most of the coaches gave an answer which is either insufficient or inappropriate.

4.1.3. Concerns for the talent identification and its importance

As it is shown **in table 2**, 72% of the athletes replied their level of interest to their competing discipline is poor. **In table 4**, 76% of replied that someone advise them to choose the event they are competing.

In table 5, 50% of the athletes said economical benefits from the discipline motivated them to join the event while 32% of them are motivated by their coaches. As a result, 81% of them **in table 6**, replied that they have a plan to shift to another event.

64% of coaches, **in table 17**, replied that they are not satisfied with the performance progression of their athletes. And as a factor the coaches suggested poor interests of their athletes to the event. On the part of club officials replied, 69% of them, **in table 19**, believed their MDR athletes are not satisfied in their field.

And these respondents also responded that they do not usually identify talent of new athletes to join their club 71% **in table 22**.

The club officials think that athletes usually shift discipline to discipline based on the economic rewards they think to get and after failing to be successful in the discipline and the 61% of the officials think **(in table 21)** the high percentage of drop outs is all a result of this.

4.1.4. Duties of identifying the talent of athletes

Although the talent identification process is largely based on competition outcomes the responsibility is not shared evenly.

In table 14, 89% of the respondents replied that club officials carry out the duty of recruiting athletes while the other parts of the club members have a little significant in the process. For club officials, the respondents replied that largely the club officials take the responsibility is a must since talent identification process should be carried out by a team which incorporates a number of different professionals, and they are against the idea of centralizing the duty of identifying talent identification process should be carried out by a team which incorporates a number of different professionals, and they are against the idea of centralizing the duty of identifying talent and recruiting athletes to the club officials only.

4.1.5. Who is responsible to improve the talent identification process of the country?

Concerning this point, it seems that no organized and structured work has been done so far. For the questions presented to the athletics federation officials about what mechanisms they have been using to improve the talent identification protocol of the country, it is valid that the federation has been doing nothing.

For the specific question, who should take the concern of improving talent identification protocol of the country?

All the concerned persons and organizations are responsible like federations, clubs, coaches and athletes should play their own role in providing any form of help to the suffering talent identification protocol of the county. And it shouldn't be left for anyone alone.

CHAPTER FIVE

5. Summary, conclusion and recommendation

5.1 Summery

As the concern of the study is to find out practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian Athletics Federation, different topics have been discussed so far, they are:-

1. The talent identification procedure of the country can be said to do not exist except some trials are done on the part of clubs by making use of competition as a criterion of recruiting athletes.
2. Coaches are not well qualified up to the standard to identify talent and they don't have a proper concept of talent and the procedure of identifying talent.
3. The concern of talent identification is somewhat poor that clubs do not usually identify talent during recruiting new athletes to their clubs.
4. Athletes join the specific discipline for some reasons rather than the talent they have.
5. The performance progression of athletes is so low that they tend to shift to another discipline after tried out their chance in the discipline.
6. The high percentage of drop out is seen as a result of poor interest in the discipline, poor performance progression and reasons related to lack of motivation.
7. The process of talent identification and recruitment of athletes largely done by club officials without the proper constitution of professionals.
8. The duty of improving talent identification is not shared and has been done nothing so far in order to bring a change.

5.2 Conclusion

The following conclusions are given based on the findings of the study.

1. The talent identification procedure of the country is poor, and can be said it has caused most of the problems related to athlete's performance decline.
2. The poor knowledge of coaches about talent and talent identification procedures resulted from coaches' poor qualification in the area of their discipline, athletics.
3. Clubs concern about talent identification is poor that they don't frequently carry out the process.
4. Athletes join their discipline without a proper talent identification process rather some reasons related to economical rewards and motivation.
5. Athletes caused to skip from discipline to discipline due to their poor interest in the discipline and failure to proceed further in their performance.
6. High percentage of dropout of athletes is seen due to lack of proper talent identification procedure which caused poor performance improvement, loose interest in the discipline and poor reasons for joining the discipline.
7. The talent identification process and recruitment of athletes done largely by club officials can't guarantee a proper and effective process is done.
8. Talent identification protocol of the country should be organized of formulated based on the current and perspective futurity of the country by making use of every concerned body's help.

5.3 Recommendation

Based on the findings, the following recommendation are given believing that practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian Athletics Federation will be resolved:-

1. Talent identification protocol of the country should be organized and structured based on the scientific methods/procedure of talent identification.
2. The qualification of coaches should be improved so as to have a proper concept of talent and procedure of talent identification.
3. Clubs attitude towards talent identification should be improved and implement in whenever necessary.
4. Athletes should be exposed to talent identification tests before joining any discipline.
5. Athletes shouldn't be forced to join the discipline against their interest and talent.
6. Talent identification and recruitment of athletes should be done by a group of professionals with different background and knowledge.
7. The federation, clubs, coaches, athletes and other concerned bodies should be working together in order to formulate, organized and improve the country's talent identification procedure.

Generally, it is clear that talent identification is a diverse subject that is not easily summed up. There are many different views on what talent identification accomplishes and how it should be structured currently, it is better to link the already existing systems of different countries.

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Appendix A

Addis Ababa University School of graduate studies

Questionnaires to be filled by middle distance athletes

Objective of the questionnaires:

The purpose of this questionnaire is to collect data on practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation. Please, read each of the items carefully and the response that correspond to the situation in your clubs. Your response has a great importance on the success of the study.

No need of writing your name

Thank you for your cooperation

Part one personal data

Please indicate your response by placing a (✓) mark in corresponding box of your choice.

Sex M ☐ F ☐

Age below 20 ☐ 20-25 ☐ 26-30 ☐ above 30 ☐

Running discipline-----

Personal best time-----

Experience at the club-----

Part two questionnaire items

Please indicate your response by placing a (✓) mark in the corresponding box of your choice.

1. How do you join the club?

- ☐ By recruitment criteria
- ☐ After winning the competition
- ☐ By having relationship with the coach
- ☐ By chance

2. What is your level of interest in middle distance event?

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Poor

3. Have you ever taken any test to determine your potential in middle distance event?

☐ Yes ☐ No

4. Did anyone advise you to choose the event you are competing currently?

☐ Yes ☐ No

5. Who motivated you to choose the discipline you are competing?

- ☐ Coaches
- ☐ Role models
- ☐ Economic rewards of the discipline
- ☐ I don't know

6. Do you have a plan to shift to another event?

☐ Yes ☐ No

7. Do you think your friends are satisfied in middle distance race?

☐ Yes ☐ No

8. Do you have any doubt that you hadn't do regarding choosing the distance you are competing?

☐ Yes ☐ No

9. Do you have any other event you would be successful if you were got a chance?

☐ Yes ☐ No

10. Is the distance you are competing the only and the first choose you picked?

☐ Yes ☐ No

11. Have you ever taken any sport discipline as a career before?

☐ Yes ☐ No

12. Does the training program in your club consider the age difference?

☐ Yes ☐ No

Appendix B

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Questionnaire to be filled by middle distance Coaches.

Objective of the questionnaires:

The purpose of this questionnaire is to collect data on practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation. Please, read each of the items carefully and the response that correspond to the situation in your clubs. Your response has a great importance on the success of the study.

No need of writing your name

Thank you for your cooperation

Part one personal data

Age

Sex

Experience at the club-----

Coaching distance-----

Part two questionnaire items

Please indicate your response by placing a (✓) mark in the corresponding box of your choice.

1. What is your level of qualification?

Phd	☐	Diploma	☐
Msc	☐	Certificate	☐
Bsc	☐	Others	☐

2. Who recruit athletes to your club?

☐	Coach
☐	Club officials
☐	Athletes
☐	Others

3. What are the criteria for athletes to join in your club?

☐	Based on their interest
☐	By winning the competition
☐	By athletes physical status
☐	By passing talent identification test
☐	Others

4. Do you consider age limits to attend the specific discipline?

☐	Yes	☐	No
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5. Are you satisfied with the performance progression of your athletes?

☐	Yes	☐	No
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6. How well your athletes respond to training?

Excellent ☐

Very good ☐

Good ☐

Poor ☐

7. Do you consider the athlete's age difference in the training program?

☐ Yes ☐ No

Appendix C

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Questionnaire to be filled by club officials

Objective of the questionnaires:

The purpose of this questionnaire is to collect data on practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation. Please, read each of the items carefully and the response that correspond to the situation in your clubs. Your response has a great importance on the success of the study.

No need of writing your name

Thank you for your cooperation

Objective of the questionnaires:

The purpose of this questionnaire is to collect data on practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation. Please, read each of the items carefully and the response that correspond to the situation in your clubs. Your response has a great importance on the success of the study.

No need of writing your name

Thank you for your cooperation

1. Do you have any criteria to hire new athletes to your clubs?

☐ Yes ☐ No

2. Do you believe all of your MDR athletes are satisfied in their field?

☐ Yes ☐ No

3. Do you usually identify talents of new athletes to join in your club?

Yes ☐ No ☐

4. What is the rate of athletes drop out in your clubs?

☐ High

☐ Fair

☐ Low

☐ No drop out

Appendix D

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Interview questions for middle distance coaches.

The purpose of this interview is to gather data about practice and challenges of coaches in identifying talent athletes of middle distance of Ethiopian athletics federation.

Position-----

Experience in year-----

1. What is talent?
2. What is the minimum age that athletes start novice training in your club?
3. How do you identify talented athletes of MDR?
4. What factors contribute for poor performance progression of athletes?
5. What conditions do you think that contribute for athletes poor response to training.

Interview questions for club officials.

1. How well new athletes adapt training loads in your club?
2. What is the reason your middle distance athletes are not successful in the field?
3. What is talent for you?
4. Who select /recruit athletes to your club?
5. Why your athletes shifting from one discipline to another in your club?

Interview questions for Ethiopian athletics federation officials

1. Does Ethiopia have a talent identification system in different clubs?
2. Do you think clubs are using effective mechanism to recruit athletes?
3. Are you in favor of the idea to recruit athletes based on competition result?
4. Do you give any training for different athletics clubs how they identify the athletics talent?
5. What is your view of talent identification process in Ethiopia athletic?
6. What sort of talent identification method you suggest for Ethiopian athletic clubs?
7. What solution you suggest to alleviate those problems?
8. Who is responsible to the problem of talent identification in Ethiopia?
9. What sort of mechanisms should be taken to come up with remedial solution for talent identification problems and athletes personal choice of events?

Declaration

This thesis is my original work, has not been presented for degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Name

Sahilu Mintesnot

Signature

Approved by

Dr.Tesfaye Asgedom

Advisor

Signature