

CHAPTER ONE

RESEARCH PROBLEM AND GOAL OF STUDY

1.1) INTRODUCTION

Sport forms an integral and important part of today's society, not only in South Africa, but the world at large. Not only is it a physical outlet for the masses of participants who practice it for a variety of reasons and motivations, but also an emotional outlet for the even larger numbers of people who prefer to partake in the spectacle of sport from the comforts of their own homes, the so-called "arm-chair specialists."

Countries and individuals now base their level of pride on the achievement of their sports men and women, so much so that sport has become a multi-billion dollar industry worldwide. Where in the past, wars of conquest occurred on the battlefields that we now preserve as monuments to the days of old, in the modern era these very self same wars of conquest are fought on the sports field and mass arenas, albeit with much less risk to human life or loss of property.

It is only understandable then that to make success in sport a sustainable issue, identification of potential and talent should come to the fore and play a major role in today's sport environment. This talent identification is of such a nature that it is carried out on the young participants of sports, to facilitate the identification of the talented individuals and to nurture their talent to their fullest potential.

It must be remembered that adults are not the only sports enthusiasts. Sport forms an integral part of modern society and has a major influence on young developing children (Blansky et al., 1994). Where the ideal would be for children to partake in sport for the play element thereof, it has become increasingly clear by the very nature of sport that it is competitive and outcomes based. The norm for older sports participants is now also the norm for younger sports participants.

When youngsters partake in sports we have to deal with various issues that they may face as individuals. To avoid disappointment and subsequent disinterest in sport all together, it seems that the responsible thing to do would be to identify the individual's level of talent in the particular sports type that they may be partaking in. The advantage of talent identification in sport is that young participants can be canalised to sports types to which they are physically and psychologically best suited (Hare, 1999). The result is that good results are achieved and that the pleasure of exercise and participation are present (Bloomfield et al., 1994).

When a look is taken at the potential advantages this holds for the countries where these youngsters live, the extensive work carried out and the results obtained by the former East Bloc countries can be evaluated. The former East Bloc countries have delivered very good results in the sports arena in the past two decades, because they bestowed a high priority on the identification of young children with specific talent and potential (Du Randt & Headley, 1993).

These countries, such as the former Union of the Soviet Socialist Republic, the German Democratic Republic and the Republic of China, have to their disposal well thought out and effectively applied talent identification techniques (Hare, 1999). The structured systems that are followed by these countries facilitate the smooth progress of the process and possibly promote the good results achieved at the Olympic Games and world competitions (Hare, 1999).

It stands to reason then, that these countries perfected certain methods that they used successfully, effectively and accurately to predict talent in the selected individuals. One merely needs to look at their results. This poses an interesting question, and one that will be examined in more detail later: will other countries be able to successfully apply these methods in their own context of sport? Will they be able to take predictions with the same level of success, in different sports types?

Some Western countries were initially sceptical about the methods used and the results obtained (Spamer, 1999). Such was the level of scepticism that two decades ago the Canadian sport scientists gave research on sports talent identification the lowest priority. It appears as if the Western countries only realized the value of talent identification recently, and started to develop programs of their own. Although there seems to be a slight disadvantage in terms of their programs being not as systematic and scientifically developed as the East Bloc, they are definitely making major strides and improving on them.

When the South African scenario is evaluated, it can be seen that we are well behind when it comes to the arena of talent identification. Up and till a few years ago, talent identification in South Africa received very little attention. Certain studies were done in the field of athletics and gymnastics, but it can be fair to say that South Africa's readmittance to the international sports arena provided us with new insights and challenges regarding international sports participation. Du Randt (1993) made a major contribution to research in South Africa through her perspective regarding talent identification on a national and international basis. This will however be discussed in greater detail in chapter 2 of this study.

Pienaar & Spamer (1996) and Pienaar et al. (1998) also made numerous positive contributions to the field of rugby during the 1990's, especially in the field of identifying talented young rugby players. Other examples include studies done by Pretorius (1996), Van der Merwe (1997) and Hare (1997, 1999). The truth remains however, that more research needs to be done in this area, hence the need for this study.

1.2) STATEMENT OF PROBLEM

As noticed from the above, talent identification in sport is a wide field, which is relatively new to South Africa. As will be seen in later chapters, South Africa only entered into the field of talent identification at roughly the same time that we were aloud back into the international sporting arena. Therefore, it is only obvious that we are relative newcomers to this field.

In the past isolationist era only a certain sector of the population had the opportunity to practice sports in a structured formal kind of way, whereas the majority were discriminated against and not afforded the opportunity to partake in these structures. The result was that numerous sportsmen and women were denied privileges that allowed them to develop into talented and identified athletes. While it cannot be denied that the talent was there, it wasn't afforded the opportunity to flourish in a way that was beneficial to the individual or the country. What resulted was this talent either not being recognized, or being lost for good.

When allowed back into international competition, the lack of experience showed, even though we managed to perform respectably. The problem was that many of the sportsmen and women were experienced in domestic competition. That however, in many instances was not enough.

Further exacerbating the problem was the fact that those sportsmen and women who did participate in the first international encounters were nearing the end of their careers. There were young participants coming through the ranks, but not nearly enough to cover for the obvious vacuum that would be felt after the older athletes' departure from the international scene.

We are now currently at a very important juncture in this country's history, not only politically or economically, but also on the front of transformation that is affecting all aspects of life in South Africa. There is a concerted drive to correct the perceived (whether correctly perceived or not, depending on whether individuals benefited or were on the receiving end) injustices of the past.

This places everyone in a difficult, if not precarious position. While this study is not about politics, it is important to note that situations are encountered almost daily that are not always necessary or applicable. It would also be unwise to ignore the fact that in today's dispensation politics plays a major role at national, regional and provincial level, with the effect also gradually being felt at club level.

This is affecting South African sport in a very real way. While the minor sports don't seem to be receiving so much coverage regarding this, the major sporting codes are being affected in a very real way. Talent needs to be identified and transformation needs to be implemented. The question still remains: at what cost?

It is true and right that all South Africans need an equal chance in all sports types. It is also true that most South Africans feel a high level of passion and patriotism for this proud country of ours. We have a marvelous sporting history and record, and the ideal would be to continue in this, and set new records.

Standards need to be maintained as well as lifted to a higher level, as it would be defeating the purpose to drop the standard to a lower level so as to include everyone! It is therefore important that new and current research in the field of talent identification be commissioned and applied.

New avenues need to be examined in detail, and no proverbial rock should remain unturned. Therefore, other countries methods also need to be examined to see if they are onto something that may be more effective than what we currently have in this country. This study's aim, even in a small way, is to be able to contribute and assist in the above viewpoint, and in so doing add to the body of knowledge that already exists in this country.

An in depth study of the available literature was performed during the course of this study. Numerous researchers were referred to, researchers who set the trend that the rest can now follow and expand upon. When the literature is examined, it becomes apparent that there are two favored statistical methods that are used by researchers to distinguish between the talented participants and the less talented participants.

These two methods are the discriminant analysis (Salmela's Conceptual Model with Discriminant Analysis) and logistical regression (Chi's Model of Logistical Regression) methods (Salmela & Règnier, 1983). The former method is one that is more commonly in use in South Africa. While it has delivered valid and reliable results, it was deemed

necessary to evaluate it and compare it to other methods that are available, namely the latter method. This method is more commonly used in the Eastern countries, who also claim that it delivers valid and reliable results.

It is important therefore, that, as mentioned before, other countries' methods also be evaluated. The biggest mistake that a developing country like South Africa can make, is to think that we know it all and to adopt an attitude of not being able to be taught. We need to learn as much as we possibly can from other countries. We do not have to adopt their methods exactly, as that would be unwise. We can however, adapt them to suit our specific needs.

The question that arises in the mind of both the coach and the researcher is the following: do the two above-mentioned methods supply the same results regarding the development of predictions by which potentially talented participants can be identified?

Further questions can be asked:

- If there are differences in the result obtained by the two methods, are these differences significant?
- Can these differences in the findings of the two methods, if any, mean the difference between success and failure or the overlooking of a talented player in favor of a less talented player?
- Is there a way to combine these two methods to form a more accurate method?
- Could this study perhaps help South Africa in the current situation that we find ourselves regarding the identification of talent in the previously disadvantaged communities?

1.5.7) Literature study

A literature study was done primarily to give this study a theoretical framework from which to work, as well as a background to refer to. Topics that were identified in the talent identification in sport on a national as well as international level, as well as how these methods can be applied in the South African context.

1.3) GOAL OF STUDY

The goal of this study is as follows:

The focus and goal of this study is to perform a statistical comparison between discriminant analysis and logistical regression regarding the development of prediction function by using existing data concerning 12 year-old rugby players. Discriminant analysis has been done on the sample group, with specific results obtained.

Logistical regression is then done on the same sample group to determine if the collective predictive functions differ in terms of talented and less talented players. Once the comparison has been performed, the results will be examined with the resulting discussion as to the benefits of the two methods, and the approach needed by coaches, researchers and sporting authorities in this country.

1.4) HYPOTHESIS

The goal and purpose of this study will be researched according to the following hypothesis:

- 1) There is a difference between the results obtained by the Discriminant Analysis method and the logistical regression method regarding the prediction of talent and the establishing of prediction functions.

1.5) METHODS

1.5.1) Literature study

A literature study was done primarily to give this study a theoretical framework from which to work, as well as a background to refer to. Terrains that were focussed on were talent identification in sport on a national as well as international level, as well as how these methods can be applied in the South African context.

This literature study can be seen in chapter 2.

Comparisons were made and discussed between methods on a theoretical level. Certain advantages and disadvantages of the methods were highlighted. The premise was made that as much background information as possible needs to be garnered to lay down the philosophical foundations for this study. No study can proceed without fully evaluating the background and reasoning behind the study, and in so doing fully taking into account all the factors involved.

1.5.2) Empirical investigation

1.5.2.1) Design

Phase 1: This phase consisted out of the identification and compilation of talented sample groups. There are 2 sample groups namely the S.A. Nike Elite u/12 group (N=43) (now referred to as the NE, or SARFU group) and the North West u/12 group (N=40) (now referred to as the NW, or MSP group). The phase was completed in the following way:

The talented individuals were identified by means of the fact that the NW group was part of the team that was selected to play for the province of North West at the Craven Week for primary schools in their age group. The NE group were identified by means of the fact that they were selected to attend the S.A. Nike Elite training camp to be held at a specified time. This group represents the best potentially talented u/12 group of rugby players in South Africa.

Phase 2: This phase consists out of the evaluation of the talented players according to a battery of tests set up specifically for them. They were tested on the following days: The NE group was tested on 17/02/99 and the NW group were tested on 03/04/99. During the evaluations, the same test battery was used for both groups.

1.5.2.2) *Measuring instruments*

Numerous batteries of tests have been described in the literature whereby talented youngsters can be identified for further developmental programs. Pienaar & Spamer (1995, 1996) have done numerous studies in the past few years with the aim of compiling a battery of tests whereby talented 11 year old rugby players can be identified for further developmental programs (Hare, 1999). The battery of tests that was followed for the monitoring of the progression of rugby players was the same as the one used by Pienaar & Spamer (1996), with certain additions (Hare, 1999).

The original rugby skills tests were added, namely passing for distance, passing for accuracy over 4m and 7m, running and catching, kicking for distance and kick-off for distance, as used by Pienaar & Spamer (1996) and by Hare (1999). Extra tests such as throw and catch (Miller 1989) and pick up ball (ARFU, 1990) were considered, but ultimately not included.

The motor/physical abilities tests, namely sprint time/speed, agility run, flexed arm hang, vertical jump and speed endurance correlated with the tests used by Pienaar & Spamer (1995) that were done on 10 year old players, and Hare (1999). Hare (1999) performed 18 anthropometrical tests, as proposed by the Society for the Advancement of Kinanthropometry (Eston & Reilly, 1996).

These tests were evaluated, and a selection of these was included in the test battery. For a full description of these tests as well as the previously mentioned tests constituting the test battery, refer to Table 1. As stated before, two groups were identified and tested. They were the S.A. Nike Elite u/12 group (N=43) and the North West u/12 group (N=40).

Table 1) Battery of tests that were used in the study

Anthropometrical Tests	Motor/Physical Tests	Rugby Skills Tests
Body Mass (kg)	Speed (s)	Passing for Distance (m)
Triceps SF (mm)	Agility Run (s)	Passing for Accuracy-7m (score)
Subscapular SF (mm)	Flexed Armhang (s)	Passing for Accuracy-4m (score)
Suprascapular SF (mm)	Vertical Jump (cm)	Running and Catching (n)
Medial Calf SF (mm)	Speed Endurance (% decrease)	Kick for Distance (m)
Upper Arm Girth (cm)		Kick-off for Distance (m)
Calf Girth (cm)		
Humerus Breadth (cm)		
Femur Breadth (cm)		

1.5.2.3) Data analysis/assimilation

The athletes were subjected to the battery of tests as shown above. The data was then analysed according to the discriminant analysis method with certain results obtained, where after logistical regression was done to obtain another set of results. The results were then compared according to the respective predictions of both methods. The results of the tests prove to be conclusive, with the results examined in chapter four and discussed in chapter five.