DEVELOPMENT OF A TALENT IDENTIFICATION MODEL TO DETERMINE THE PHYSICAL ATTRIBUTES OF ATHLETES FOR THE LONG JUMP EVENT

By

TAN KOK SIANG

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirement for the Degree of Master of Science

March 2006

Dedicated to my wife for her continuous support. She has utmost confidence that I will be able to complete my thesis even if it takes me more than ten years.

Dedicated to my son. It is my hope that this will spur him towards achieving academic excellence.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment
of the requirement for the degree of Master of Science

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Chairman: **Sheikh Kamaruddin bin Sheikh Ahmad**

Faculty: **Educational Studies**

The purpose of this study is to analyze and determine the physical attributes for use
in a Malaysian talent identification model for the athletic long jump event. This is a
predictive study that explores the relationship between the physical attributes and
how these attributes can be used to predict long jump performance (LJUMP). By
use of multiple regression analysis, the dependent variable, LJUMP, is predicted
from the derived regression equation. The study populations are junior long
jumpers consisting of 29 girls with mean age 14.06 years and 20 boys with mean
age 14.60 years. Data were collected on their performance in LJUMP, and the
physical attributes of anthropometry comprising height (HT), weight (WT), stage of
growth and development (GTH), age (AGE), as well as their performance in the
30m Run (RUN), Sit-ups (SITUPS), Sargent Jump (SARG) Standing Long Jump
(SLJ) and Sit and Reach (S&R). The predictive equation for the girls is

LJUMP = 356.517 + 42.809(z-score SLJ) + 30.081(z-score SARG). SLJ influences

LJUMP more than SARG. The model explains 71.6% (R squared) of the variance

in LJUMP. Collinearity was of concern and it was treated using z-scores in place of

raw scores.   The predictive equation for the boys is LJUMP = 104.164 +

4.388(SARG) + 2.965(S&R).   SARJ influences LJUMP more than S&R.   The

model explains 83.8% (R squared) of the variance in LJUMP.   The data and

statistical results presented support the idea that a practical and effective talent

selection model can be formulated for the athletic long jump event. The model has

immediate practical application and the theoretical framework and statistical

procedures involved can be employed to construct talent selection models for other

athletic or sports events.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains.

MEMBINA MODEL PENGENALPASTIAN BAKAT UNTUK MENENTUKAN CIRI-CIRI FIZIKAL ATLET BAGI ACARA LOMPAT JAUH

Oleh

TAN KOK SIANG

Mac 2006

Pengerusi: **Sheikh Kamaruddin bin Sheikh Ahmad**

Fakulti: **Pengajian Pendidikan**

Tujuan kajian ini adalah untuk menganalisis dan menentukan ciri-ciri fizikal untuk digunakan dalam model pengenalpastian bakat bagi acara lompat jauh. Kajian ini meramalkan perhubungan di antara ciri-ciri fizikal dan bagaimana ciri-ciri ini dapat digunakan dalam meramal prestasi lompat jauh (LJUMP). Pembolehubah bersandar LJUMP diramal melalui persamaan hasil regressi menggunakan teknik analisis regressi berganda. Subjek kajian adalah atlet lompat jauh yang terdiri dari 29 perempuan dengan min umur 14.06 tahun dan 20 lelaki dengan min umur 14.60 tahun. Data prestasi yang didapatkan ialah LJUMP, ciri-ciri fizikal dan anthropometri merangkumi tinggi (HT), berat (WT), tahap kematangan (GTH), umur (AGE), Larian 30m (RUN), Bangun Tubi (SITUPS), Lompat Sargent (SARG), Lompat Jauh Berdiri (SLJ), dan Duduk dan Jangkau (S&R). Hasil kajian menunjukkan ramalan hubungan bagi prestasi LJUMP perempuan ialah

LJUMP = 356.517 + 42.809(skor-z SLJ) + 30.081(skor-z SARG). SLJ mempengaruhi LJUMP lebih dari SARG. Model yang terhasil boleh menerangkan 71.6% varians dalam LJUMP. Kebimbangan dalam kollineariti dikawal melalui skor-z. Ramalan hubungan bagi prestasi LJUMP lelaki ialah

LJUMP = 104.164 + 4.388(SARG) + 2.965(S&R). SARG mempengaruhi LJUMP lebih dari S&R. Model yang terhasil boleh menerangkan 83.8% varians dalam LJUMP. Dapatan kajian menyokong idea bahawa model pengenalpastian bakat yang praktikal dan berkesan boleh dibentuk bagi acara LJUMP. Model ini yang melalui rangka teori dan prosedur statistik yang terlibat dapat digunakan dalam pembentukan model pengenalpastian bakat bagi acara sukan lain.

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Dr. Jabar Johari who guided me during the initial stages of my thesis preparation. He was an early member of my supervisory committee.

Md. Saadon bin Abd Shukor my good friend and former colleague at the National Sports Council. His assistance throughout was immense and together we have 'fought many a battle' to complete our respective master's program.

I certify that an Examination Committee has met on 27th.March 2006 to conduct the final examination of Tan Kok Siang on his Master of Science thesis entitled "Development of a Talent Identification Model to Determine the Physical Attributes of Athletes for the Long Jump Event" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis was submitted to the Senate of Universiti Putra Malaysia and was accepted as partial fulfilment of the requirements for the degree of Master of Science. The members of the Supervisory Committee are as follows:

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DECLARATION

I hereby declare that this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

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TAN KOK SIANG

Date:

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