# CHAPTER 11

# DIFFERENTIAL SELECTION MODEL

## 11.1 Introduction

Stoker et al (1985:158) recommend course specific selection. The fields of study at tertiary institutions, but especially Technikons, impose distinctive requirements and challenges to students. The ideal, therefore, would be a specific selection procedure or differential admission requirements for each course of study.

In its mission statement the Technikon Pretoria commits itself to procuring students with the highest possible ability in order to maintain high academic standards. During 1996 a new admission policy was accepted. This policy states that the Swedish formula cannot be used in isolation, but research must to be undertaken to provide alternative selection methods. The criteria that were set for the admission policy are that it should be:

- scientific, that is accountable, objective and empirically founded;
- transparent, that is, all procedures should be clearly described and known; and
- fair, that is the highest possible level of objectivity to be achieved.

Louw et al (1998:153) suggests the following regarding selection and its purpose:

- the best equipped person for the career task should be selected. This does not necessarily mean the academically best qualified person, but implies that not only will the person at present be able to achieve success in a course, but there exists a possibility of personal growth and development within the chosen career;
- Selection should not be only aimed at the potentially successful first-year student, but also at the potentially successful final-year student and incumbent; and

- Selection should make provision for individual differences.

Van der Vyfer (1984:113) states that a selection system including more than scholastic performance as the sole predictor, will become increasingly important at tertiary institutions, especially at Technikons.

The Technikon Pretoria strives to provide and promote career-orientated education in accordance with the high-level human resource needs of the community, and to support and promote programmes for co-operative education. Smit (1992:5) states that in order to achieve this aim training and education are career specific.

## 11.2 Model

A differential multiple hurdles model has been designed for the selection of students at tertiary institutions as depicted in Figures 11.1 and 11.2. Huysamen (1996:12) also recommends the multiple-hurdles model for tertiary institutions.

The model as depicted in Figure 11.1 is designed for the selection of Personnel Management students. The first hurdle is the Swedish formula therefore an applicant, with a mark of 100 and above, is unconditionally accepted. This represents 5 subjects on higher grade with an average D-symbol.

To an applicant with a Swedish mark of lower than 100 the Nowicki-Strickland Lefcourt I/E scales will be applied. If an applicant receives 30 or more he/she will be accepted. An applicant receiving below 30 will be subjected to the Discuss model and specifically, the external compliance dimension.

FIGURE 11.1: SELECTION MODEL FOR THE SELECTION OF HUMAN RESOURCES MANAGEMENT STUDENTS.

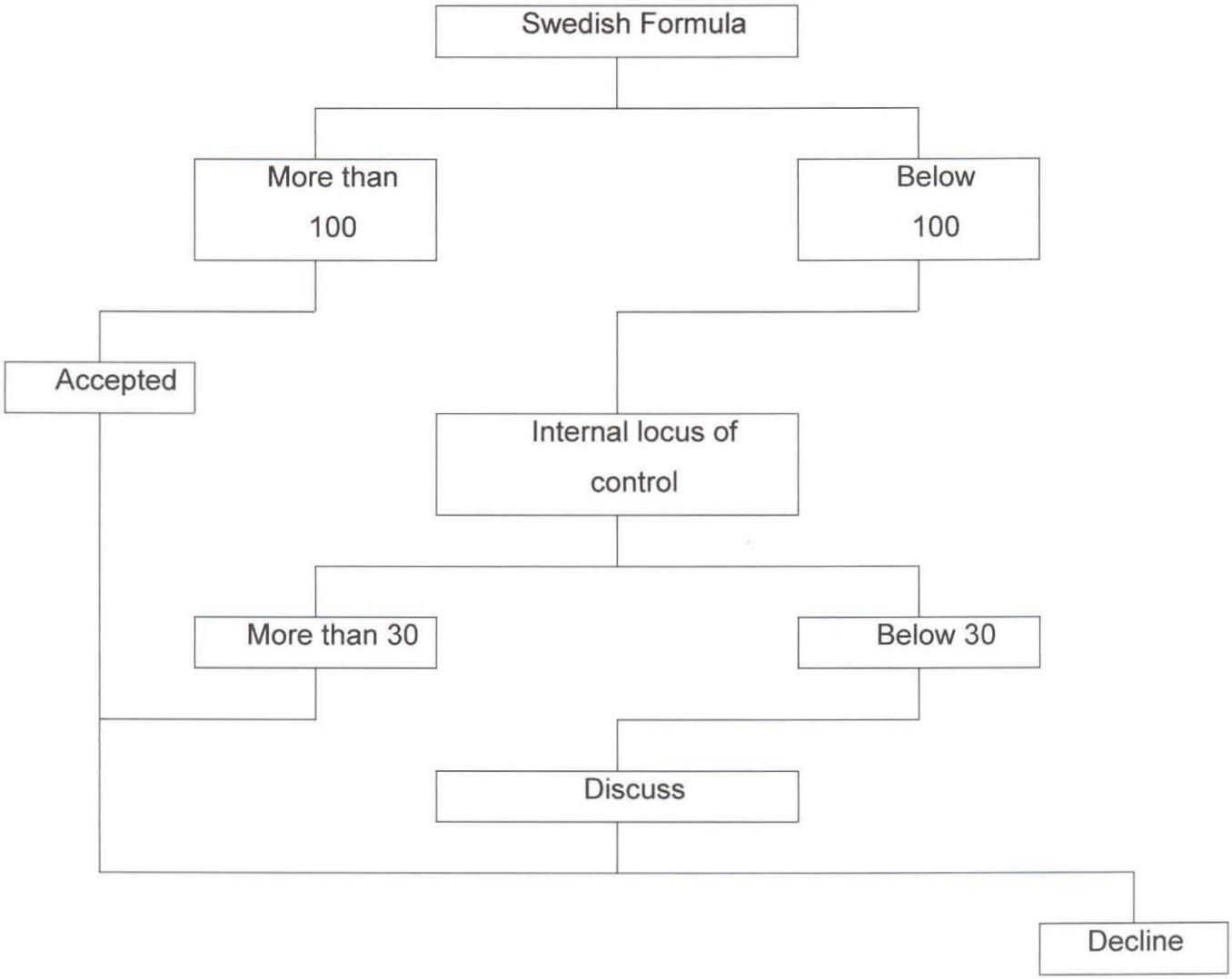
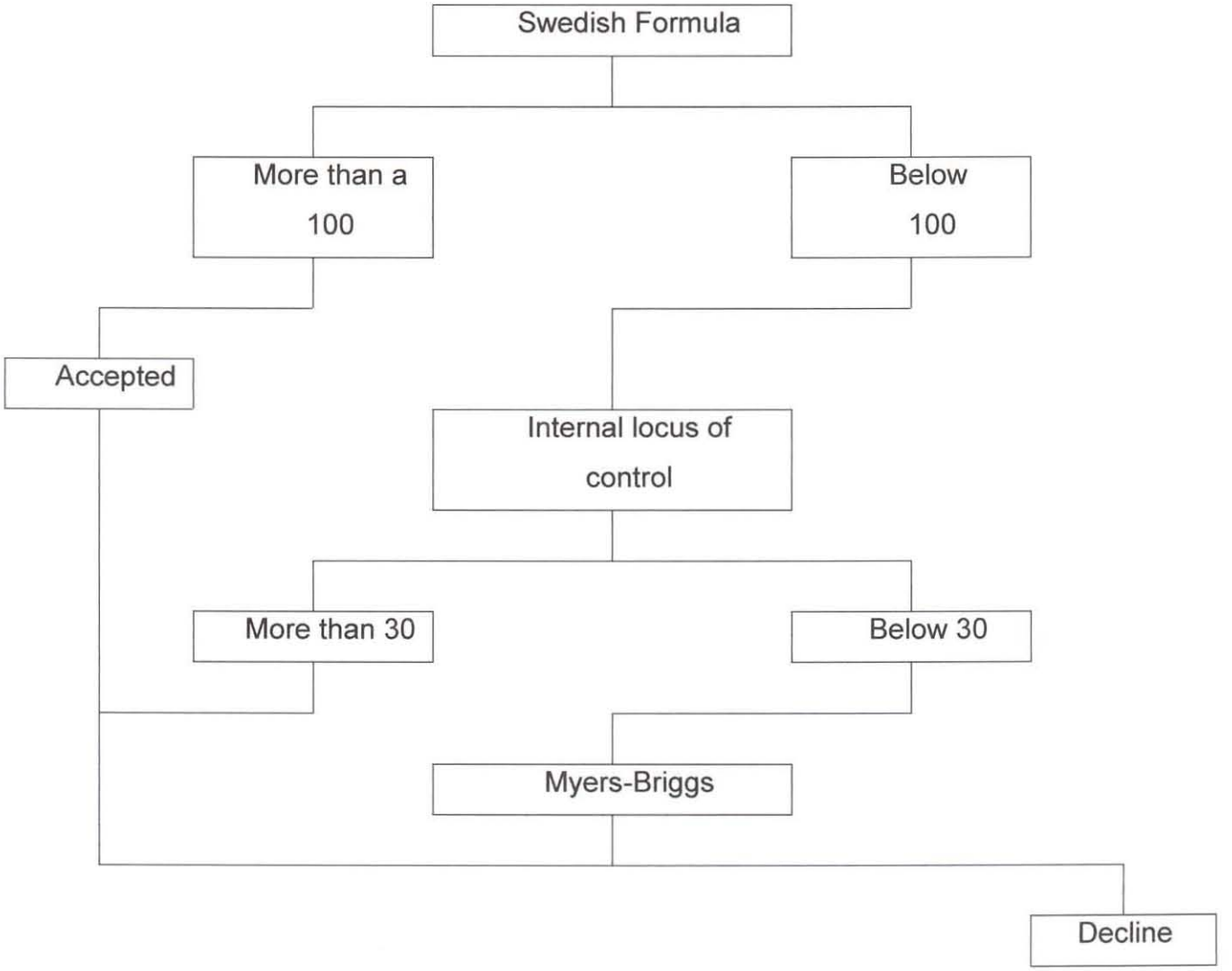


FIGURE 11.2: SELECTION MODEL FOR THE SELECTION OF INDUSTRIAL ENGINEERING STUDENTS.




The model as depicted in Figure 11.2 has been designed for the selection of Industrial Engineering students. The first hurdle is the Swedish formula and an applicant with a mark of 100 and above is unconditionally accepted. This represents 5 subjects on higher grade with an average D symbol.

To an applicant with a Swedish mark of lower than 100, the Nowicki-Strickland Lefcourt I/E scales will be applied. If an applicant receives 30 or more he/she will

be accepted. An applicant receiving lower than 30 will be subjected to the Myers-Briggs and specifically the intraversion, intuition, sensing, feeling and perception.

## 11.3 Conclusions

Selecting students for tertiary study is a worldwide problem. Traditionally, scholastic achievements were used as selection criteria to gain access to South African tertiary institutions. An alternative procedure has therefore been researched and the focus has had to move to assessing the individual's ability to achieve academic success.

From the results as presented in chapter 10 the following conclusions can be drawn:

### 11.3.1 Matric subjects

Significant correlations were found between:

- Afrikaans and Typing, Home Economics and Agriculture;
- Economics and Biology;
- Business Economics and Typing;
- Biology and Science and Economics;
- Industrial Arts and Mathematics;
- Accounting, Biology and Science;
- Science and Art; and
- Tsonga and Biblical Studies.

### 11.3.2 Matric subjects and Technikon subjects

#### *11.3.2.1 Personnel Management*

Significant relations were found between Personnel Management and the following matric subjects:

- Afrikaans;

- English
- Mathematics;
- Economics;
- Biology;
- Science
- History;
- Northern Sotho; and
- Accounting.

The relation with 3 languages could indicate the underlying assumption that language ability is a necessity for academic success as mentioned by Landman (1986:116).

The inclusion of numerical subjects such as Economics, Accounting and Mathematics indicates a relation with the business environment.

### 11.3.2.2 Industrial Engineering

No significant relations with any matric subjects were found. A possible reason could be that that the number of students namely 57 included in the study, had a choice of 35 matric subjects.

## 11.4 Measuring Instruments

Specifically the Discuss external dimension compliance and the Nowicki-Strickland Lefcourt I/E scales predict success in Personnel Management.

The following variables are included as possible predictors of the average Personnel Management mark:

- Rotter / Nowicki-Strickland Lefcourt I/E Scales;
- Myers-Briggs (extraversion, intraversion, sensing, judging, thinking, feeling, perception, intuition);
- DISCUSS (External dimensions - dominance, influence, compliance, steadiness);

- DISCUSS (Internal dimensions – dominance, influence, steadiness, compliance); and
- DISCUSS - Stress dimension.

Significant relations between the following dimensions of the Discuss and Myers-Briggs were found:

- Internal influence and sensing, intuition, thinking and judging;
- Internal steadiness and sensing, intuition;
- External dominance and sensing, intuition;
- External influence and sensing, intuition, judging;
- External sensing and extraversion, intuition; and
- External compliance and judging and perception.

Significant relations were found between the Nowicki-Strickland Lefcourt I/E scales and the following dimensions of the Discuss:

- Internal steadiness; and
- Stress.

The following variables are included as possible predictors of the average Industrial Engineering mark:

- Rotter/ Nowicki-Strickland Lefcourt I/E scales;
- Myers-Briggs – intraversion, intuition, sensing, feeling, perception;
- DISCUSS – External dominance, influence, steadiness, compliance;
- DISCUSS – Internal dominance, influence, steadiness, compliance; and
- DISCUSS – stress.

Significant relations between Industrial Engineering and the feeling dimension of the Myers-Briggs were found.

Significant relations were found between academic success in the average Technikon major subjects and the dimensions of the:

- Discuss internal influence, steadiness;
- Discuss external steadiness, compliance;

- Myers-Briggs thinking, feeling, judging, perception; and
- Rotter/ Nowicki-Strickland Lefcourt I/E scales.

In conclusion of this study the models as presented in Figures 11.1 and 11.2 can be utilised to predict academic success for the two courses viz Human Resources Management and Industrial Engineering.

## 11.5 Recommendations

It has been concluded that Technikon selection cannot depend solely on matric results and that milieu limitations regarding education systems, social and economic factors must be taken into consideration. This poses new challenges to Technikons and other tertiary institutions.

The point of departure will always be matric subjects combined in different permutations, but those applicants who do not comply with this criteria must be give an opportunity to enter tertiary education through additional selection techniques as presented in Figures 11.1 and 11.2.

One of the limitations of this study is that the number of Industrial Engineering students included in the sample was only 57.

The validity and reliability of the measuring instruments in this study can contribute significantly to the journey of fine-tuning the models presented in Figures 11.1 and 11.2. The inclusion of a valid and reliable potential test will enhance these models significantly.