

**1<sup>st</sup> Southern African Conference on the First-Year Experience**


**Factors predicting success in physiotherapy**

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**Introduction**

- **Higher education as a dream**
  - ✓ Sound school foundation
  - ✓ Identifying the desired career
  - ✓ Identifying an institution
  - ✓ Making an application
  - ✓ Gaining admission
- **Responsibility for success**
  - ✓ Students
  - ✓ Institution
  - ✓ Lectures
  - ✓ Parents

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**Introduction cont..**

- **Physiotherapy education**
  - ✓ Selection criteria
  - ✓ 4 year degree
  - ✓ 8 universities
  - ✓ Intake 25 – 50
  - ✓ Throughput

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Year	Black	White	Total
1994	4 (11%)	34 (89%)	38
1995	4 (14%)	21 (86%)	25
1996	5 (14%)	32 (84%)	37
1997	1 (3%)	32 (97%)	33
1998	6 (16%)	32 (84%)	38
1999	7 (17%)	35 (83%)	42
2000	7 (14%)	44 (86%)	51
2001	7 (11%)	54 (89%)	61
2002	7 (12%)	51 (88%)	58
2003	5 (9%)	52 (91%)	57
2004	9 (21%)	35 (79%)	44
2005	12 (31%)	27 (69%)	39
<b>TOTAL</b>	<b>74 (14%)</b>	<b>450 (86%)</b>	<b>523</b>

Year of graduation	Black graduates	Other graduates	Total graduates
2000	37 (23%)	125	162
2001	35 (16%)	186	221
2002	33 (12%)	249	282
2003	31 (10%)	269	300
2004	39 (17%)	186	225
2005	35 (15%)	203	238
<b>TOTAL</b>	<b>210 (15%)</b>	<b>1218</b>	<b>1428</b>

Source: HPCSA Register (2006)

Black physiotherapy graduates per university (1998 – 2004)

Year	HWU	HWU	HSU	HSU	HWU	HWU	HWU	HSU
1998	1	1	5	1	0	0	0	14
1999	2	5	8	6	0	0	0	13
2000	1	2	5	7	0	0	2	20
2001	2	3	3	4	0	2	0	20
2002	3	1	4	7	0	3	0	18
2003	5	3	1	11	0	1	0	16
2004	0	0	0	2	0	0	0	4
	<b>14 (7%)</b>	<b>17 (8%)</b>	<b>26 (12%)</b>	<b>38 (18%)</b>	<b>0 (0%)</b>	<b>6 (3%)</b>	<b>2 (1%)</b>	<b>107 (51%)</b>

Source: HPCSA Register (2006)



## Approach of the study

- What did the students 'do right' that assisted them to succeed?
- What did the students bring with them that contributed to their success?
- What sort of circumstances contributed to their success?



## Literature review

- **Why prediction?**
- **Riordan (2002):** Inadequate initial evaluation can result in failure to provide students with support and appropriate curriculum design; understanding of the variables contributing to academic success will allow universities to know which students are likely to be successful
- **Cognitive predictors of success**  
High school grades & aptitude tests predict success  
Predictive strength weakens for several minority students
- **Non-cognitive predictors of success**  
✓ NCQ Tracey & Sedlacek (1984)
- **Personal experiences**



## Literature review2

- **Non-cognitive predictors of success**  
Several authors have used the NCQ (Tracey & Sedlacek, 1984) => Evidence to have effective predictability of academic performance for different student populations
  - ✓ Asian Americans (Fuentes et al, 1994),
  - ✓ African Africans (Boyer & Sedlacek, 1988; Sedlacek and Adams-Gaston, 1992),
  - ✓ Hispanics (Fuentes & Sedlacek, 1995),
  - ✓ white and African Americans (Ting and Robinson, 1998; Tracey and Sedlacek, 1984, 1985, 1987)
  - ✓ specially-admitted students (White & Sedlacek, 1986;Ting, 1987;) and
  - ✓ low-income and first generation students (Ting, 1998).



## Literature review3

- **Physiotherapy students – no correlation with matric results (Mokoena, 1997; Mothabeng, 1998)**
- **Physiotherapy students – no correlation with entry interviews (Nadasan & Puckree, 2003)**
- **Matric strong predictor of success (Badenhorst et al, 1990; Skuy et al, 1996) – no racial differentiation**
- **Complex relationship (Badsha et al, 1986) – significant number of black students in the sample**



## Methodology

- **Retrospective survey**
- **Mixed-methods approach**
- **Questionnaire (open & closed questions)**
- **Population (1998 – 2005)**
- **Sample (210 + 210)**



## Independent Variables

- **Race**
- **Gender**
- **University of qualification**
- **Matriculation results**
- **Type of school**
- **Language of instruction at school**
- **Career choice**
- **Socioeconomic background**
- **University experience**



## Data analysis

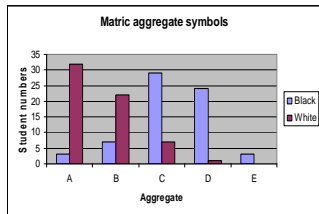
- Frequency distribution
- Frequency analysis
- Logistic regression
- Stepwise regression analysis model
- Content analysis



## Results

- 128 returned questionnaires (41%)
- 66 black + 62 white respondents
- Black: 59% (4 – 4<sup>1</sup>/<sub>2</sub>yrs) 41% (>5yrs)
- White: 90% (4yrs) 10% (>5yrs)
- Private: Black = 6% White = 16%
- Public: Black = 94% White = 74%

## Results



Comparison of matric aggregate symbols between black and white respondents

## Results

Variable	White graduates n = 62	Black graduates n = 66
	$\chi^2 = 1.27$ ; $p = 0.25$	$\chi^2 = 0.40$ ; $p = 0.52$
Gender	$\chi^2 = 0.08$ ; $p = 0.76$	
Race	Odds ratio = 6.461 $p = 0.00$ CI = 2.43 – 17.12	Odds ratio = 0.155 $p = 0.00$ CI = 0.058 – 0.41
	$\chi^2 = 16.29$ ; $p = 0.00$	
Duration of study	Average = 4yrs	Average = 5yrs

## Analysis of frequencies

Category	All respondents		Black	
	Variable	$\chi^2$ p	Variable	$\chi^2$ p
High School education	Aggregate symbol	18.85 0.00		3.41 0.57
	English	15.73 0.00		2.36 0.66
	Biology	12.19 0.03		8.11 0.08
	Language of instruction	10.46 0.03		2.31 0.67
Influence on career choice	Knowledge of community about physiotherapy	16.00 0.00	Physiotherapy as 1 <sup>st</sup> choice of career	4.24 0.03*
Source of information about the university	Parents attended the university	5.90 0.01		NS
Source of information about available support systems	Classmates	6.95 0.01	Classmates	6.10 0.01*
Accommodation	Own room at home	8.20 0.00	Shared residence room	4.51 0.03*
	Own room at university res	4.18 0.04		
Language policy	Lectures in home language	10.46 0.00	University	6.51 0.04*
University experience	Part of group	9.28 0.00	Part of the group	4.07 0.04*


## Logistic regression results

Independent variable	R <sup>2</sup>	p
First choice career	0.04	0.04*
Information from classmates	0.07	0.02*
Shared residence room	0.03	0.05*
University language	0.00	-
<b>Part of group</b>	<b>0.04</b>	<b>0.04*</b>
<b>Variance</b>	<b>18%</b>	

**Stepwise regression model**

variable	Odds ratio	p- value	Confidence interval
Shared university room	5.913475	0.013	1.460888 - 23.9369
Received information about support systems from classmates	25.77279	0.006	2.532159 - 62.3204
Chose physiotherapy as the first choice	.1610977	0.009	.0413164 - .6281

Variance = 28%




## Qualitative analysis

On the open ended questions the participants were asked

- to define academic success about
- reasons they thought generally contributed to some students being more successful than others
- factors they thought contributed to their own success
- factors they thought contributed to their colleagues completing the degree in minimum time


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## Definition of academic success

Academic success is obtaining a degree within the minimum time and having confidence in applying the knowledge gained.

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## Determinants of success

- Personal ambition
- Language proficiency
- Personal attributes

} Individual factors

- Relevant support
- Compelling circumstances

} Contextual factors

- 'Racial favoritism'

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Qualitative findings	Quantitative findings	
Personal ambition	First choice career	<ul style="list-style-type: none"> <li>Fraser &amp; Killen (2005) found that the 'success' items that both lecturers and students ranked highly paint a picture of a <b>self-motivated, hard-working student who can learn independently, prepare well for examinations and who has made a wise choice of course of study.</b></li> <li>Similar findings were also reported by Fraser and Nieman (1995) emphasizing the fact that <b>self-discipline and self-control</b> should be regarded as two important variables impacting on the performance of students.</li> </ul>
Language proficiency	University language	<p>Jardine (1986) as cited by Toni and Olivier (2004) sees the South African black student as a victim of an education system which forces her/him to study in a language foreign to her. In most cases this student is penalized for an inability to effectively utilize the language in her academic endeavours.</p> <p><i>"English language was my problem as I was doing well in clinical work but struggling in writing theory"</i></p> <p><i>"In first year I did chemistry and physics in Afrikaans so language was major barrier to me. Second year was the same but even worse because I needed first year background so I didn't do well"</i></p>

Relevant support	Information from classmates	Information from shared residence room	Information from part of the group/integration
	Harmon and King's (1985) expert systems theory = successful college students are those who are in effect 'experts' at being successful as students at a specific university or college: theoretical and heuristic knowledge.	<ul style="list-style-type: none"> <li>Studies conducted by Blal (1971) Ainsworth and Maynard (1976) Duncan and Stoner (1977) and Pascarella and Terenzini (1978) have provided consistent evidence that <b>residential peer influence as well as on-campus academic environments have a significant effect on students' college achievements for both high- and low-aptitude college students.</b></li> <li>Blimling and Hample (1979) have also found that <b>students living in campus residence halls with structured emphases upon studying improve their academic performance in college.</b></li> <li>Nettelbladt et al (1986) found studies that are convincing in showing the positive effects of residential hall placement upon the performance of low-aptitude students <b>when matched with roommates with high-aptitude students of similar personality type.</b></li> <li>Tinto (1993) observed that residence halls provide <b>scaled down environments that enable newcomers to find an early physical, social and academic anchor during the transition to college life.</b></li> <li>Blimling (1993) cited abundant evidence that living in residence halls has a <b>strong positive effect on student persistence in college</b> although there is no evidence whether the persistence end up in success.</li> </ul>	<ul style="list-style-type: none"> <li>Integration into the group of fellow students is important in physiotherapy because physiotherapy training is about group work and partnership orientated and therefore a student needs to fit in the group or have a good working partnership to be able to learn successfully.</li> </ul>



## Conclusion

- ‘Access without support is no opportunity’ Engstrom & Tinto, 2008
- Supportive environment is important for success
- Structured accommodation (1<sup>st</sup> years)
- Increase intake => security in numbers
- Diverse teaching strategies => security in knowledge and skills
- Early career guidance



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- National Research Foundation
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# Thank You

Category	All respondents		White	
	Variable	X <sup>2</sup> p	Variable	X <sup>2</sup> p
High School education	Aggregate symbol	18.85 0.00		NS
			Physical Science	10.98 0.05
	English	15.73 0.00		NS
	Biology	12.19 0.03		NS
	Language of instruction	10.46 0.03		NS
Influence on career choice	Knowledge of community about physiotherapy	16.00 0.00	Interest in the profession	5.72 0.02
Source of information about physiotherapy		NS	Family/friend	4.19 0.04
Source of information about the university	Parents attended the university	5.90 0.01	Internet	20.87 0.00
Source of information about available support systems	Classmates	6.95 0.01	Mentor	6.74 0.04
Accessed support systems		NS	Counselling	19.28 0.01
			Mentoring	5.79 0.03
			Student affairs	19.28 0.01
Source of funding		NS	Bursary	5.63 0.04

