# WIDENING ACCESS OF BLACK STUDENTS INTO PHYSIOTHERAPY PROGRAMMES IN SOUTH AFRICA

**ABSTRACT:** Access to learning and the provision of equal opportunities for success and progression to the previously disadvantaged communities is addressed extensively in the Education White Paper 3. While historically white universities have invested some effort to diversify the racial composition of their students, physiotherapy departments at these universities do not reflect a change in student demographics.

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The purpose of this article is to address the concept of widening access into physiotherapy education within the context of transformation in higher education. The article examines the history of education in the past dispensation, the policies that have been put in place to redress the educational inequalities caused by the past dispensation and makes suggestions as to how universities can react to them. The literature that has examined the relationship between entry requirements and the success of students within the chosen profession is also outlined.

The article concludes with recommendations for a way forward for physiotherapy in addressing some of the issues related to student selection.

KEY WORDS: WIDENING ACCESS, BLACK STUDENTS, HISTORICALLY BLACK AND WHITE UNIVERSITIES, ENTRY REQUIREMENTS.

### INTRODUCTION

"The coming to power of the Government of National Unity (GNU) in April 1994 heralded for many in South Africa a break with the past associated with racial discrimination and created a heightened expectation of far-reaching change in all spheres of life. Such expectations included the sphere of higher education which, since the 1970's had been the site of bitter struggle and contestation." Rajani Naidoo, 1998

In response to these expectations, the National Commission on Higher Education was appointed to propose policies that would transform higher education. Policies for access to university education were among the policies that were proposed by the Commission.

Access policies in higher education are developed to enhance the participation rates of social groups that are under represented in institutions of higher education, relative to the participation rates of other more dominant groups (Lingard et al 1994). In South Africa, access policies have been targeted particularly at black students and, less frequently and to a lesser degree at female students.

Although this article limits itself to a focus on access to a specific sector of

higher education, namely that of the physiotherapy profession, it should be noted that access policies are central to policies of equity and redress and are linked to success and progression. Transformation of higher education therefore becomes one of the vehicles for operationalizing the access policies.

In order to put the new government's higher education policies, to which physiotherapy as a profession needs to respond, into perspective it is important to revisit the history of education that necessitated these policies. This history is both political as well as educational because it was shaped by the politics of the country. The point of origin is important in order to map the direction towards a destination.

# HISTORICAL BACKGROUND Structure of the Universities

Until 1985 the universities were segregated by statute (the Extension of University Education Act of 1959); blacks were prohibited from entering historically white universities (HWUs) without ministerial permission. Racially and ethnically based universities were established for Africans, Coloureds and Indians under the provisions of the same Act. The creation of separate black universities fulfilled three primary goals:

first to legitimate and solidify the idea of separate racial and ethnic groups promoted by the National Party government; second, to provide personnel to administer and support structures in the newly created homelands (Gwala 1988; Subotzky 1997); and third, to maintain and reproduce the subordinate social and economic position of blacks (Christie and Collins 1984). Although the legal barrier for access to higher education was removed in the in the late 1980s, continuing poor school provision for black students and highly selective admission policies on the part of the HWUs limited opportunities for black students to gain admittance to the high status universities (Hunter 1986; File 1989; Jordan 1990; Cooper et al 1992). Within the system as a whole, most South African universities have remained segregated along racial lines and the

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imbalance between white and black students has remained constant (Naidoo 1998). It comes as no surprise that black students have therefore put strong pressure on university management structures and demanded access to university education - such action has been seen as affirmative action. There has also been a powerful appeal by the high status, historically English speaking universities (expressing a view underpinned by a liberal heritage) for the maintenance of academic standards (Saunders 1987; Mackenzie and Clayton 1994). For this reason, as well as for what might be considered to be 'profession specific' admission criteria, certain programmes that are offered at universities have remained under-represented by black students. Physiotherapy being one of these profession, is a point in case.

### Structure of the schooling system

Under the apartheid system, the education of black scholars was undertaken under the auspices of the Department of Education and Training whose provision of education was of poor quality. As a result, black scholars constantly underperformed in the Standard 10 (Grade 12) examination. In 1987, of more than 90 000 black scholars who sat for the examination, only 28 % (25 000) secured a matriculation exemption of which less than 800 scholars achieved a higher grade pass in mathematics and science. Only 14 scholars achieved a 'D' aggregate for mathematics and only 8 for science (Hofmeyer and Spence 1989). In the Johannesburg area, only 41 out of 1558 scholars who wrote the examination passed mathematics and only 24 of the 601 scholars who wrote the physical science higher grade examination passed this. In 1991 in the whole country, of the total cohort of 253 623, less than ten black students scored an 'A' aggregate in their Standard 10 examinations (Pienaar 1991). These black scholars had endured an impoverished school system for at least ten years which severely compromised the possibility of them being eligible for selection to or for the successfully completion of tertiary education at universities.

Although the new Government of National Unity in 1995 set out to transform the schooling system and introduced one Education Department, conditions in many schools are such that the scholars will continue for some time to have disadvantaged education at primary and secondary level. The teachers from most of these schools were educated under the previous disadvantaged system of schooling and therefore are under prepared as teachers, lacking the skills and educational experience needed to facilitate adequate academic development in scholars. Thus the provision of poor education continues to influence the participation of black students in higher education because these scholars are expected to compete for selection into programmes with peers who have received education of a higher quality enabling the latter to reach a higher level of their academic potential.

### Admission into physiotherapy

When physiotherapy training was offered in South Africa, it was offered at the traditionally white universities. Physiotherapy was not known previously in the black communities due to the lack of contact with physiotherapy services and the absence of role models with whom the students could identify. As a result mainly white students applied for entry into physiotherapy. The entry requirements were high, with a high mark in mathematics and physical science being required. As the schooling of the white students had been adequate, those students with the academic potential were able to obtain marks high enough to gain entrance into physiotherapy.

Limited exposure of black communities to the profession is due to the fact that physiotherapy services are sparsely distributed in the disadvantaged urban communities and even more so in rural areas (Lewis 1996). Yet, the majority of the black students that seek access into physiotherapy programmes come from the townships as well as from rural areas. Cohen (1994) rightly suggested that people are drawn to a health care profession by a significant personal experience that inspires them to think of a career in health care. In 1998 Tomlinson observed that by virtue of living in poor areas most of the ethnic men and women, who happened to be in the minority in the UK, are habitually exposed to higher rates of unemployment, reduced social class and poorly performing schools. These schools had

been intended for the working classes and were never intended to prepare students for a higher level of academic work. This observation holds true for South Africa given the history of social, economic and educational segregation. However, in the UK this group of people belong to minority groups, whereas in South Africa, the group referred to comprises the majority of the population.

In 1979 training of black students as physiotherapists was commenced at the Medical School of Southern Africa (MEDUNSA) at Diploma level and required lower matriculation results, especially in mathematics and science. Later, when a degree was offered in all the universities, the black students saw a wide choice of training facilities. However, both the laws of the country at the time and their inability to meet the stringent entry requirements, prevented black students from studying at the white universities. In all of the university degrees for health professions physiotherapy remains one of the most difficult programmes to access for all students in general and black students in particular. This, in part, has thus led to the black population being severely underrepresented in this profession.

Low numbers of black students continue to apply for entry into the physiotherapy course at traditionally white universities. One reason might be that three out of the eight universities that offer physiotherapy training, mainly use Afrikaans as the medium of instruction. Afrikaans is a third language for most black people who were not keen to learn it because it was associated with the oppressive policies enforced by the previous government. This resistance culminated in the 1976 uprising by high school students protesting the enforced change from English as medium of instruction for black students' schools to mandatory Afrikaans. This turned out to be one of the turning points in the history of education and politics in general. The other reason for low numbers of applicants might be the perceived high drop-out rate of black students from white universities.

The poor matriculation results, especially in mathematics, of the black students continue not to meet the standard for acceptance into physiotherapy. However, according to Price (2004) there is no obvious correlation between matri-

culation marks and fine motor coordination and handling skills which are required in physiotherapy. There is also no evidence in South Africa or internationally, that students with high academic marks make good doctors or any other health professionals.

Mackenzie and Clayton (1994) argue that in an attempt to alleviate the plight of black students in gaining access to higher education, no one dares to mention a lowering of standards. This is partly because academics, by virtue of their academic heritage, perceive a lowering of standards as a diminution of the concept of higher learning, a reversal of the expected progress towards excellence and truth. One might question whether academic achievement in terms of marks awarded, is equated with the concept of an academic standard.

Moulder (1992) has argued the case for a lowering of academic level: Are our universities trying to operate at too high a level? I believe that they are and they will have to lower this level without ceasing to strive after excellence. The University of Zimbabwe has already come to terms with this change. The level at which it strives to be excellent is straight forward and realistic: it hopes that the top 2% of its graduates will be able to pass an Oxbridge entrance examination and go on to take an Oxbridge degree. Most (South African) universities are not as sensible: they try to operate at an Oxbridge level without having Oxbridge students or Oxbridge resources; and therefore many of the students whom they admit, fail to graduate. The disquietingly weak academic performance of many black students at Englishmedium universities is well documented (Hawarden 1985; Badenhorst et al 1990).

In 2002 Mason and Sparkes suggested that if having conquered the adversity which all students face on their journey to higher education, it seems even more damaging if the open door to higher education turns into a revolving door for students who are unable to cope and before long find themselves back outside again. They further suggest that the sense of frustration and discrimination, which accompanies the inability to enter higher education, is multiplied many times, if after gaining entry, higher education does not deliver to the black students what it promised. They also

argue that minority students in the United Kingdom, with differing needs, are expected to conform to the traditional educational framework, which was designed and has worked for the 18-year-old middle-class able-bodied white undergraduates, for the primary numerical goal of complying with government policies of equity.

What Moulder is advocating is a lowering of degree standard and maintenance of academic rigour within the revised parameters of that standard (Mackenzie and Clayton 1994). This could be the task given to the physiotherapy Standards Generating Body. In the meantime, the physiotherapy department of MEDUNSA has already attempted to lower the entry requirements (not the standard) into the degree, but has made sure that once admitted, the students strive for excellence and maintain the academic rigor. The result has been the production of most of the black physiotherapy academics, some of which are teaching in historically white universities, and prominent physiotherapists within the profession. Most of the black physiotherapists who have obtained postgraduate degrees from the historically white universities are MEDUNSA graduates.

# LITERATURE REVIEW Predictors of success

A number of South African studies on selection and admission to higher education (Skuy et al 1996; Badenhorst et al 1990; Schochet 1985) support the findings by Stoker et al (1986) that the strongest single predictor of success at university was the aggregate score on the school leaving examination. These studies fail to examine either gender or race (Dawes et al 1999). In addition these studies focus on specific university courses, and are therefore unsuitable for making any generalization. In the few cases (Badenhorst et al 1990: Schochet 1985) where race was examined, the number of other than white students in the sample was extremely small. Where the number of black students is significant (Badsha et al 1986) however, the results point to a complex relationship between school-leaving examination and success at university.

In other countries a number of studies have been conducted in the physiothe-

rapy profession regarding correlation between entry grades and academic performance at university level. According to Mason and Sparkes (2002) in British physiotherapy courses only two studies into how well admission qualifications predict success have been published (Hill 1985; Kerr 1985). The American studies (Balogun 1988; Roehrig 1988; Templeton et al 1994) demonstrated low to moderate correlation between entry grades and academic performance during physiotherapy training. Similar results were obtained in Australia by Rickard-Bell, Marshall and Chekaluk (1991). Studies in Canada by Peat, Woodbury and Donner (1982), Pickles (1977) and Olney (1977) found low but significant correlations between entry grades and clinical performance. An interesting finding from the studies by Peat et al (1982) and Pickles (1977) was that predictive strength for academic performance was strongest in the first year of physiotherapy education and weakened progressively in later years (Morris and Farmer 1998)

In terms of what has become known as the late blooming hypothesis (Wilson 1980), the poor university performance of students from historically black high schools is believed to improve as the academic semesters and years accumulate. In the South African context, the late blooming hypothesis implies that as students from historically black high schools adjust to the demands of university life; are exposed to suitably qualified university lecturers with presumably a better command of English language; avail themselves of academic support services; and cultivate more effective study methods, their performance will increasingly overlap with that of students from historically white high schools (Huysamen 2000). According to the distinction described by Moos (1976) between physical and psychosociological environments, black first year students have to adjust not only to a new physical campus environment, but also to a different set of cultural and social customs, beliefs and values and some of them from a rural to an urban lifestyle. Some cultural customs and mindsets may inhibit the independent thought and enquiring mind that are required for success at university level. Even if these considerations do not

apply, black students' academic progress is still impeded by a lack of funds to cover the most basic expenses such as books, stationery and transport - not to mention their tuition and accommodation fees. In view of the above, it comes as no surprise that students from educationally disadvantaged backgrounds find it more difficult to adapt to tertiary academic study (Ferreira 1992, 1995). As a result, the average first-year performance of black students compares unfavourably with that of their counterparts (Huyseman 2000).

### Widening participation in physiotherapy

In the United Kingdom, widening participation in higher education was offered by the government as strategy to address inequality in both further and higher education (Mason and Sparkes 2002). This concept is concerned with bringing more students from underrepresented and disadvantaged groups into education and training; ensuring that these students stay in their programmes; extending the ways through which they can earn and achieve; and ensuring that they progress to suitable destinations (Further Education Funding Council 1997). Some of the strategies that were aimed at recruitment and progression were implemented and these included recruitment of mature students through part-time degree programmes, accredited work-based learning initiatives and targeted further education and higher education marketing such as positive action for ethnic minority groups. These strategies could well be implemented in the South African context by:

- utilizing the SAQA Recognition of Prior Learning to open access for mature students and for students who do not have matriculation with exemption or did not study the subjects that seem to be considered for entry into physiotherapy.
- recruiting mature students from the Physiotherapy Assistant pool and offering part-time programmes in a similar way that part-time programmes are offered for post-graduate students.
- exploring and considering the option
  of a post-graduate degree (as is the
  case in America where the Doctor of
  Physical Therapy programme is in
  place) for students who already have
  a bachelor's degree.

 utilizing the accredited work-based initiative (Learnerships) which is already legislated in the form of Skills Development Act (No. 97 of 1998)

However, in the UK physiotherapy is yet to benefit fully from the widening participation agenda, as its historical roots continue to influence both delivery of the degree programme and admissions criteria. Widening participation has only been recently considered within physiotherapy and is therefore in its infancy (Mason and Sparkes 2002). This raises a question of whether the problem of access should be attributed to government and institutional policies or to the physiotherapy profession.

The mission of the Professional Board of Physiotherapy under the Health Professions Council of South Africa (HPCSA) is to ensure that training is in line with the needs of the country and relevant to international standards. The strategic objectives include:

- Significantly enhancing capacity to serve the South African population better;
- Improving accessibility and affordability; and
- Formulating policy framework for equity.

The mission and the objectives seem to take cognisance of the SAQA Act but there is no evidence of operationalization of the objectives. Year after year, physiotherapy departments are required to submit statistics of their students where it is quite clear that accessibility of black students remains a problem. Yet, there is no feedback that is communicated to the universities regarding the low numbers of black students that are admitted into the profession. Even in the accreditation reports of the departments submitted by the professional board, the issue of low numbers of black students is only mentioned with no directive from the board, which is supposed to improve accessibility. Recognition of Prior Learning, as a vehicle for access into higher education, has been on the national agenda since 1995 but physiotherapy as a profession has not started to debate this as an option for selection.

The origin of physiotherapy in South Africa is from the United Kingdom and therefore its delivery and admissions criteria are bound to be influenced by that history. Physiotherapy as a health profession in South Africa needs to break away from the British influence if it is to contribute to the development of human resources for health delivery in this country. It is refreshing though to note that even in the United Kingdom, it has been recognised that the profession needs to widen the access to all population groups.

### Transformation in physiotherapy education

Transitional change is defined by Kirsten (1994) as the structural transformation of a society in all its dimensions - the political, social, economic, cultural, educational - resulting in a complete change of the existing relations of power. Transition therefore is an all-inclusive process and affects every institution and organization in the society. The transformation of higher education institutions is therefore a direct result of the transition from apartheid to a more equitable dispensation.

In 2000, van der Merwe explored the concept of transformation viewed from the perspective of higher education. In exploring the forms of manifestation of transformation he suggested that the task of transformation involved much more than mere reconstruction of social structures and institutions (van der Merwe 2000). He offers three requirements for transformation:

- Fundamental changes in respect of attitudes and relationships
- Fundamentally different strategy with regard to the way in which resources are used with a view to achieving the society's objectives (RSA DNE 1996)
- A paradigm shift, the abandoning of old ways of knowing and doing and the adoption of a new, broader definition of reality

The requirements identified by van der Merwe (2000) are true for the physiotherapy profession and training if access is to be increased for black students. Attitudes that admitting poorly educationally prepared students will lower academic standards, need to change. Resources have to be redistributed and be redirected towards supporting the academic development of black students, if their access and throughput is to improve and the old ways of doing, par-

ticularly of admission into the profession, have to be abandoned. Khotseng (1992) believes that instead of nurturing cultural privileges and keeping the university as a purely elitist institution focusing only on full-time students with accepted entrance requirements, it is essential that the nature of the university be changed in order to open doors to all students who can benefit from it. At present, most people are willing to change not because they see the light, but because they feel the heat (McFarlane 1996). However, transformation is only genuine if it leads to the development of meaning at the level of the individual (Agar 1994).

In the light of universal demand for social equality and inclusion, higher education acts as a direct agent for transformation (van der Merwe 2000). Higher education plays an important role in the process of eventually rectifying social imbalances (Gourley 1995). If institutions of higher education therefore have a social obligation to transform societies then one can assume that the physiotherapy profession has the same obligation. The principle of public accountability implies that institutions are answerable for their actions and decisions not only to their own governing bodies and the institutional community but also to the broader society. Firstly it requires that institutions receiving public funds should be able to report how, and how well money has been spent. Secondly, it requires that institutions should demonstrate the results they achieve with the resources at their disposal. Thirdly, it requires that institutions demonstrate how they have met national policy goals and priorities (White Paper 3 on Higher Education).

The South African government made provisions for all institutions of higher learning, including those training physiotherapists, to create learning opportunities for all citizens of the country. To that effect, in September 1995 the president of South Africa assented the South African Qualifications Authority Act, which was to provide for the development and implementation of a National Qualifications Framework (NQF). The objectives of the NQF are to:

- 1. Create an integrated national framework for learning achievements;
- 2. Facilitate access to and mobility and progression within education, training

- and career paths;
- 3. Enhance quality of education and training;
- 4. Accelerate the redress of past unfair discrimination in education, training and employment opportunities; and thereby
- Contribute to the full personal development of each learner and the social and economic development of the nation at large.

Nine years after SAQA act was legislated, physiotherapy as a profession has been ineffective in obtaining these objectives. According to the HPCSA records of 2003 there was an intake of 327 first year physiotherapy students of whom 51 (16%) were black students. Thirty-one (61%) of these black students were admitted at the Medical University of Southern Africa, which is a traditionally black university. This means that the other seven universities shared amongst them only 20 (39%) black students. It needs to be understood though that the physiotherapy departments operate within the broader context of their universities and therefore within the rules and regulations of the universities hence the professional bodies need to assist them.

#### WAY FORWARD

It is clear that the vast majority of black students underachieve in their grade 12 examinations in comparison with their white counterparts. Scott (1991) rightly insisted that if it is assumed that intelligence is evenly spread, the best student out of one social group must have the same fundamental potential even if one child achieves an A-aggregate and the other manages only a C-aggregate. On this basis therefore, not only are top academic black students under-performing in final secondary and undergraduate examinations, but a considerable body of deserving but disadvantaged, black students do not enter university studies at all (Mackenzie and Clayton 1994). The most desirable solution to universities' uncomfortable predicament of widening access would be an enhancement of the calibre of schooling available to black students. This can be a long-term aim because by 1990 only 9.9% of black secondary school teachers were graduates, and about 30% of black primary teachers did not have a Standard 10 certificate (Webb and Erwee 1990) in van der Merwe (2000).

The traditional selection criteria by matriculation results and questionnaires or interviews have clearly not worked in increasing access of black students into the profession. At present, access of black students into the profession is primarily at the Medical University of Southern Africa, which was created as a 'black' university but this is clearly insufficient because of the lack of physical resources.

The following questions need to be answered by both the physiotherapy educators and clinicians and probably by the consumers of physiotherapy services: What attributes are graduates expected to have at the end of the programme? What characteristics and skills do they need to have to attain those attributes? How do we identify these skills and characteristics in order to utilize them as additional criteria for selection? What are the predictors of success?

If the profession is still not known in the black communities then the physiotherapists and students who are already training should market the profession using appropriate and effective strategies. If the students are not applying to certain universities, the real reasons need to be established.

## CONCLUSION

This article has argued that the history of education in South Africa, both the schooling and higher education, has had an influence in the access of black students into higher education in general and into physiotherapy in particular. The schooling has poorly prepared the students for higher education and the higher education entry requirements, act as an unsurpassable barrier in many cases to black students. Physiotherapy departments, because they operate under the rules and regulations of their universities, have been bound by these high expectations of matriculation results.

For the physiotherapy profession to contribute to the social development of the majority of the people of South Africa, to report how, and how well public funds have been spent, to demonstrate the results they have achieved with the resources at their disposal and to demonstrate how they have met national policy goals and priorities, the issue of widen-

ing access for black students needs to be addressed. Any selection tool that is used needs to be used as an inclusion tool rather than exclusion of those who have no potential for success.

#### REFERENCES

Agar D L 1994 Universities and the academic profession: implications for change. South African Journal of Higher Education 8(2): 5 - 8 Badenhorst F D, Foster D H, Lea S J 1990 Factors affecting performance in first-year psychology at the University of Cape Town. South African Journal of Higher Education 4 (1): 39 - 45

Badsha N, Blake G T W, Brock-Utne J G 1986 Evaluation of the African matriculation as a predictor of performance in the University of Natal Medical School. South African Journal of Science 82: 220 - 221

Balogun J A 1988 Predictors of academic and clinical performance in a baccalaureate physical therapy program. Physical therapy 68: 238 - 242

Christie P, Collins C 1984 Bantu education: apartheid ideology and labour reproduction, in: P Kallaway (Ed.) Apartheid education: the education of Black South Africans. (Johannesburg, Ravan Press)

Cohen J J 1994 From the President: Project 3000 by 2000 and Health Care Reform. Academic Medicine 69(9): 728

Cooper C, Hamilton R, Mashabela H, Mackay S, Kelly J, Sidiropolous E, Gordon-Brown C, Moonsamy J G 1992 Race Relations Survey 1991/2. Johannesburg, South African Institute of Race Relations.

Dawes P, Yeld N, Smith M J 1999 Access, selection and admission to higher education: maximizing the use of school-leaving examination. South African Journal for Higher Education 13(3): 97 - 104

Ferreira J G 1992 The university first year in South Africa. Higher Education Review 24 (3): 28 - 36

Ferreira J G 1995 Transition from school to university. South African Journal for Higher Education 9(1): 154 - 158

File J 1989 Critical challenges for South African universities, in N Hartman and I Scott (Eds) Restructuring South African Tertiary Education: academic contributions to the debate on rationalization. Cape Town, UDUSA Further Education Funding Council 1997 How to widen participation: A guide to good practice. FEFC Publishing, Coventry.

Gourley B M 1995 Transformation in tertiary education. Progression 17(1): 20 - 27

Gwala N 1988 State control, student politics and the crisis in black universities, in: W Cobbett and R Cohen (Eds) Popular struggles in South Africa. (Trenton, Africa World Press) Hawarden J 1985 Some non-academic problems of black students at the University of Witwatersrand. ASPects 6: 12 - 17

Hill DA 1985 An analysis of GCE subjects and grades as predictors of performance on physiotherapy degree and diploma courses. Physiotherapy 71: 51 - 53

Hofmeyer J, Spence R 1989 Bridges to the Future. Optima pp 37 - 48

Hunter P 1986 A quinquennium of academic support: issues and problems based upon the Wits experience, paper presented at the Academic Support Programmme Conference, University of Natal, Pietermaritzburg

Huysamen G K 2000 The differential validity of matriculation and university performance as predictors of post-first-year performance. South African Journal for Higher Education 14(1): 146 - 151

Jordan P 1990 Speech given to People's Education Workshop in July 1990, cited in Christie P (1991) The Right to Learn: the struggle for education in South Africa. Cape Town, SACHED Trust

Kerr K M 1985 Pre-entry requirements and academic performance in primary degree courses in physiotherapy at the Ulster Polytechnic. Physiotherapy 71: 468 - 471

Khotseng M 1992 Universities in postapartheid South Africa. South African Journal for Higher Education 6(2): 88 -93

Kirsten J M 1994 Building a new UPE: the contexts of institutional transformation. Port Elizabeth: University of Port Elizabeth

Lewis C L 1996 A State University's Model Program to increase the number of its disadvantaged students who matriculate into Health Professions schools. American Medicine 71(10): 1050 - 1057

Lingard B, Bartlett L, Knight J, Porter P, Rizvi F 1994 Equity and diversity in mass higher education: some policy issues. Australian Universities Review 2: 2 - 7

Mackenzie C G, Clayton G 1994 Black students in 'white' universities: the character and provision of liberal higher education institutions in post apartheid South Africa. Compare 24(1): 67 - 78

Mason C, Sparkes V J 2002 Widening participation in Physiotherapy education. Part 1: Introduction. Physiotherapy. 88(5): 273 - 275 McFarlane L R 1996 Die transformasie van 'n fakulteit. Pedagogiekjoernal 17(2): 98 - 102

Moos R H 1976 The human context: environmental determinants of behaviour. New York: Wiley-Intersience

Morris J, Farmer A 1999 The predictive strength of entry grades and biographical factors on the academic and clinical performance of physiotherapy students. Physiotherapy Theory and Practice 15(3): 165 - 173

Moulder J 1992 The changing face of a university education, in R McGregor and A McGregor (Eds). McGregor's Educational Alternatives (Kenwyn, Juta): 107 - 129

Naidoo R 1998 Levelling or playing the field? The politics of access to university education in post-apartheid South Africa. Cambridge Journal of Education 28(3): 369 - 382

National Commission for Higher Education 1996 A Framework for Transformation. Pretoria, NCHE

Olney S J 1977 Prediction of clinical competence of students of physical therapy. Physiotherapy Canada 29: 254 - 258

Peat M, Woodbury MG, Donner A 1982 Admission average as a predictor of undergraduate academic and clinical performance. Physiotherapy Canada 34: 211 - 214 Pickles B 1977 Correlations between entry requirements and performance in the diploma programme in physical therapy at the University of Alberta. Physiotherapy Canada 29: 249 - 253

Pienaar V 1991 Bridging the gap to give all a chance. The Star, April 18

Price M 2004 Do we know what makes a good doctor? Wits Newsclips. February

Rikard-Bell G, Marshall E, Chekaluk E 1991 Academic performance of mature-age and other students in a physiotherapy program. Journal of Allied Health Spring: 107 - 117

RSA DNE (Republic of South Africa. Department of national Education) 1996 Changing management to manage change in education. Report of the Task Team on Education Management Development. December, Pretoria: Department of National Education

Roehrig S M 1988 Prediction of licensing examination scores in physical therapy graduates. Physical Therapy 68: 694 - 698

Saunders S 1987 Freedom, the Universities and the future. 1987 presidential address, South African Institute of Race Relations topical briefing (Braamfontein, SAIIR)

Schochet I 1985 University admissions: can we measure potential. ASPects 6: 18 - 40

Scott I 1991 Interview with Val Pienaar. The Star, 18 April

Skuy M, Zolessi S, Mentis M, Fridjhon P, Cockcroft K 1996 Selection of advantaged and disadvantaged South African students for university admission. South African Journal of Higher Education 10(1): 110 - 118

Stoker D J, Engelbrecht C S, Crowther N A S, Du Toit S H C, Herbst A 1986 Investigation into differential entrance requirements for tertiary educational institutions: an abridged version of Report WS-31. Report Number WS-32 Pretoria: Human Sciences Research Council.

Subotzky G 1997 Final research report: the enhancement of graduate programmes and research capacity at the historically black universities. (Bellville, Education Policy Unit, University of Cape Town)

Templeton MS, Burcham A, Franck A 1994 Predictive study of physical therapy admission variables. Journal of Allied Health Spring: 79 - 87

Van der Merwe H M 2000 The concept of transformation viewed from the perspective of higher education. South African Journal for Higher Education 14(3): 81 - 89

Webb and Erwee 1990 as cited in van der Merwe HM 2000 The concept of transformation viewed from the perspective of higher education 14(3): 81 - 89

Wilson KM 1980 The performance of minority students beyond the freshman year: Testing a 'late bloomer' hypothesis in one state university setting. Research in Higher Education 13(1): 23 - 47

White Paper on Higher Education Transformation (Draft 3) 1997 Government Gazette 382 (17944) (Notice 712): 1 - 80