



The Internet Journal of Allied Health Sciences and Practice

<http://ijahsp.nova.edu>

A Peer Reviewed Publication of the College of Allied Health & Nursing at Nova Southeastern University

Dedicated to allied health professional practice and education

<http://ijahsp.nova.edu> Vol.5 No. 2 ISSN 1540-580X

Framing a Vision for Physiotherapy Research: Synthesizing Educators' Viewpoints in Cape Town

Quinette Louw, PhD¹
Karen Grimmer-Somers, PhD²
Lynette Crous, MSc³
Margaret Marais, MSc⁴
Seyi Ladele Amosun, BSc, PhD⁵

1. Division of Physiotherapy, Stellenbosch University, Cape Town, South Africa
2. Centre for Allied Health Evidence, University of South Australia, Australia
3. Department of Physiotherapy, Stellenbosch University, Cape Town, South Africa
4. Physiotherapy Department, University of the Western Cape, Cape Town, South Africa
5. School of Health & Rehabilitation Sciences, University of Cape Town, Cape Town, South Africa

South Africa - Australia

Citation:

Louw, Q., Grimmer-Somers, K., Crous, L., Marais, M., Amosun, S. Framing a vision for physiotherapy research: Synthesizing educators' viewpoints in Cape Town. *The Internet Journal of Allied Health Sciences and Practice*. April 2007, Volume 5 Number 2.

Abstract

Purpose: The Cape Town region is the largest training locality for physiotherapy training in South Africa. The socio-political changes since the first democratic election in South Africa have impacted on physiotherapy training and clinical practice, although there currently is no evidence-based vision statement for physiotherapy practice in South Africa. This paper reports key findings from interviews held with three prominent physiotherapy educators / administrators in the three Cape Town universities' physiotherapy schools regarding their perspectives on research, clinical teaching and evidence-based practice in physiotherapy. The purpose of this research was to frame a vision for South African physiotherapy, which could underpin profession-wide discussions on equity, accessibility, safety, evidence-base and appropriate-resourced physiotherapy care for all South Africans. **Method:** A qualitative research design was employed and semi-structured interviews were conducted individually with 3 key participants who each have more than 10 years experience in education at the three physiotherapy tertiary training institutions in Cape Town. The questions sought perspectives on where physiotherapy research education had come from over recent times in South Africa, what contributed to its successes and failures, and what future there was for research and clinical practice in South Africa into the future. **Results:** The positive points about South African research were that research interest is perceived to be growing for academics and clinicians, postgraduate degrees have been introduced in all Cape Town universities. Negative points were reported included a lack of focus and direction for research and the overwhelming volume of research to be undertaken relative to the changing South African health care scene. **Conclusion:** The research findings highlight the need for the development of a vision that rises above individual organizations and institutions, and which takes a nation-wide view of future research and its relationship with clinical practice and community need.

Background

Over the past 20 years, research activities which underpin clinical decision-making have been reported as essential to support physiotherapy care based on the

best available evidence.^{1,4} Evidence-based practice is described as the "judicious use of the best available evidence to inform treatment decisions for individual patients."⁵ A recent review of the literature on evidence-

based practice in physiotherapy identified a large number of professionally motivating articles, primarily conducted in developed countries such as Australia, UK and USA.^{1,6-9} These publications debate aspects regarding the production, dissemination, and uptake of evidence in physiotherapy practice, and they provide visionary statements about the future of physiotherapy in these countries. However, barriers to the use of evidence in clinical physiotherapy practice have been consistently identified over the same time period as these motivating articles were written.^{1,7-9} The amount and complexity of research, variable access to best evidence guidelines and organizational structures are frequently-reported barriers that hamper the translation of physiotherapy evidence into clinical practice.^{1,7} Barriers to evidence uptake in the developing world have been less frequently addressed in the published literature. Developing countries may also face additional challenges such as cost, accessibility, and availability of published health information, computer literacy, workforce shortages, research and library facilities, and financial requirements to facilitate the uptake of research evidence into physiotherapy clinical practice.¹⁰

South Africa is a developing nation which is characterized by a high degree of social inequality.¹¹ These social inequalities represent the gamut of health problems affecting the global community of developing countries.^{12,13} In addition to pressing South African health needs such as AIDS, equity in health care has also become a priority with the transition of the democratic government in 1994.¹⁴ Equity and accessibility to physiotherapy and other forms of rehabilitation continue to remain a challenge in ensuring provision of high quality health care for all.¹⁰

The socio-political changes since the first democratic election in South Africa in 1994 have also impacted on physiotherapy training and clinical practice, although there currently is no evidence-based vision statement for physiotherapy practice in South Africa.¹⁴ Changes in health care policy are placing significant imposts on physiotherapy educators and the clinicians graduating from the training institutions.¹⁵ One of these demands is to ensure that all eight South African universities offering physiotherapy in their curriculum, cater for culturally diverse students, and that these graduates are equipped to work across different communities at all levels of health service delivery (namely advantaged and disadvantaged communities at primary, secondary and tertiary levels in rural and urban settings).

Limited health care resources now need to be made available to serve a much wider population than ever before, and this has increased pressures on physiotherapists to make the best evidenced, least expensive treatment decisions in order to maximize their unique contribution to the health of South Africans.^{15,16} Application of evidence-based practice in the public health sector in rural areas require additional resources

to address barriers such as traditional health care beliefs (myths), geographical isolation, variable access to, and compliance with, care, and limited or no access to relevant research.¹⁷ Moreover, South African physiotherapists are expanding their role beyond reactive, curative interventions into promotion of good health, and prevention of injury and chronic diseases.¹⁸ Key stakeholders such as educators, researchers and policy-makers are thus required to take steps that will facilitate the translation of research into clinical practice, and thereby ensure that physiotherapy care leads to tangible improvement in health outcomes in a cost-effective manner.¹⁵

Consequently, improvements to, and changes in, the practice of physiotherapy are required to meet the challenges of the South African health system.¹⁵ Traditionally, improvements of physiotherapy practice in South Africa occurred through gaining clinical expertise, by attending short continuing postgraduate clinical courses.¹⁵ The incorporation of research into physiotherapy practice continues to be variable however, and the physiotherapy profession is yet unable to provide standard and widespread evidence of the effectiveness of care to the government and funding agencies which are increasingly placing demands on the profession to demonstrate accountability and cost effectiveness.¹⁸

Postgraduate courses have largely only been available in South African training institutions since the 1990s, and many educators are still in the process of obtaining a postgraduate degree themselves. University requirements now clearly demand newly appointed educators to have at least a Master's degree, and consequently the number of physiotherapists with postgraduate training in South Africa is increasing steadily. However, the "catch-up" education process, coupled with limited research funding opportunities, means that clinicians, educators and researchers are continually challenged to produce meaningful research, as evidenced by the research papers published in the South African physiotherapy journal, which reflect the limitations of current research in informing and facilitating evidence based practice.¹⁹

The Cape Town region is the largest training locality for physiotherapy training in South Africa, as three physiotherapy training institutions are situated within a 20km radius from each other. The training centers are based at the University of Cape Town, University of the Western Cape and Stellenbosch University. Collectively these three physiotherapy schools have a yearly undergraduate student intake of 150 students, compared with other cities such as Johannesburg where the physiotherapy school has an annual undergraduate intake of 50 students per annum.

One of the largest physiotherapy training centers, in terms of the numbers of academic staff, is based at Stellenbosch University in Cape Town.²⁰ The

physiotherapy schools in Cape Town also draw students from other regions in South Africa where there are limited training opportunities, such as the Eastern and Northern Cape. The opportunities for physiotherapy training in Cape Town are also reflected in the number of postgraduate physiotherapy students studying there. Collectively, the three physiotherapy training schools have some 100 postgraduate students, this being considerably more than any other South African city offering physiotherapy training.²⁰ The postgraduate students stem from a range of geographical regions, racial and social backgrounds and about 20% of these students are from Southern African countries such as Tanzania and Rwanda. All training centers in South Africa comply with standard educational requirements advocated by the South African Health Professions Council to reduce variations in programs offered by higher degree institutions.²¹ Considering that Cape Town is a primary training center for physiotherapists and that it shares educational commonalities with other training centers in South Africa, Cape Town could be considered as representation of physiotherapy education and research in South Africa.

This paper reports key findings from interviews held with three prominent physiotherapy educators / administrators in the three Cape Town universities' physiotherapy schools regarding their perspectives on research, clinical teaching and evidence-based practice in physiotherapy. The purpose of this research was to frame a vision for South African physiotherapy, which could underpin profession-wide discussions on equity, accessibility, safety, evidence-based and appropriate-resourced physiotherapy care for all South Africans.

Methods

Ethical approval was obtained from Stellenbosch University. Extensive semi-structured interviews were conducted individually with each participant. The

participants (SA, LC, MM) all hold postgraduate qualifications in physiotherapy, and were invited into the study because of the insights and experiences that they had gained while holding key posts over the past 10 years in physiotherapy tertiary training programs in Cape Town. All interviewees were in the later years of their academic careers, and all had been involved across a range of aspects in the tertiary sector with respect to academic responsibilities. Their own teaching, research supervision, and administrative backgrounds were believed to facilitate the provision of rich insights and perspectives to the interviews. LC and SA are currently departmental chairpersons and MM has just stepped down as departmental chairperson. All three interviewees have been departmental chairpersons and have been responsible for developing research capacity within their respective departments. All interviewees also had experience in serving on national physiotherapy education and professional boards which were believed to enhance their ability to provide meaningful information pertaining to physiotherapy education.

The researchers (QL, KG) brought their own experiences as cross-national researchers and educators to the construction of the interview questions, and to the synthesis and reporting of the interview findings.

The interview questions were drafted initially by the researchers and modified during the interviews by input from the participants. The questions were framed by the survey questions reported by Metcalfe et al. and Jette et al. and provided scope for the participants to bring their experiences and perspectives to their responses.^{8,9} The questions sought perspectives on the history of physiotherapy research education in South Africa, what contributed to its successes and failures, and what future there was for research and clinical practice in South Africa. The general interview questions are outlined in Figure 1.

Figure 1: The semi-structured interview questions

Reflecting on the past 5 years of physiotherapy research conducted at post graduate level in South Africa, what are the positive and negative points that you can identify?
What type of things should occur in the next five years at post graduate level to improve research outputs of interest (publication, PhD, grant applications etc)?
What is your vision for research in South Africa in the next five years?
What are the facilitators and barriers to improved research output during this time frame?
If you believe that there should be a South African vision for physiotherapy research, who should participate in setting it?
What training is required for physiotherapists undertaking higher degree research to assist them in doing it better?
Is there a link between under graduate education curriculum and South African physiotherapy research?

Data collection, handling and synthesis

The interviews were conducted individually, by telephone or face-to-face, as appropriate. Face to face interviews were conducted with MM and LC on the 24th March 2006 and SA was by telephone interviewed on the 13th of April 2006. The interviews were tape-recorded and transcribed, and returned to the interviewees for validation. Observer notes were taken by one of the key

researchers (KG) for two of the interviews for validation purposes. Key themes were identified by the two key researchers (QL, KG) independently of each other, using the transcripts from each interview and applying the interview synthesis processes described by Rice and Ezzy.¹⁹ Observer notes were compared with the key themes for consistency, and then the researchers' interpretations of the key themes were compared for

consistency of transcript interpretation. Summary themes were identified and these reflect the main data reported in this paper. Direct quotations are provided where appropriate as evidence of the validity of the intent of construction of the synthesized themes. Participants were identified in their quotations by deidentified codes (Participant 1 = P1 etc).

Results

Regarding South African postgraduate physiotherapy research conducted in the past five years

Overall, the positive points were that research interest is perceived to be growing for academics and clinicians, postgraduate degrees have been introduced in all Cape Town universities, research publications are increasing in number and quality, research is perceived to be more feasible and achievable, academics and clinicians are learning from mistakes made in the past, and South African physiotherapy research is opening up to the world by linking with other universities for postgraduate training and mentorship. Another positive contribution relates to younger physiotherapists who have either worked or studied at overseas universities and are now able to use the skills and knowledge obtained internationally to contribute towards physiotherapy research in South Africa. Physiotherapists are also keen to conduct multidisciplinary collaborative research which can further strengthen their efforts.

We should learn from our mistakes from the past, students who went overseas who are coming back to give courses will lift the level of physiotherapy. P2

A number of negative points were reported however, including a lack of focus and direction for research, the overwhelming volume of research to be undertaken relative to the changing South African health care scene, a lack of sophistication in conceptualizing and doing research, carrying research activities through to conclusion, failure to attract adequate research funding, teaching research methods and statistics, and writing, reviewing, and publishing. The interviewees perceived much of the past research endeavor to be unsustainable, in that it was undertaken "for the sake of it," rather than with a wider vision.

Research in the past was very superficial, not in depth research; students don't know how to go about research methodology. P2

Training programs don't seem to develop a research interest in students; expectations of undergraduates for research are not being achieved. P3

Students and supervisors identify so many research problems you can't keep count, we need to be more focused. P3

The lack of resources (i.e. time, equipment, expertise) to undertake research that makes a real impact on South African health was mentioned by all participants. Two of the participants mentioned the lack of congruence between clinicians and researchers that did not support carry-through of research findings into clinical practice. Expectations of research outcomes often were seen to outweigh expertise, and having negative experiences of research as an undergraduate diminishes interest in ongoing research involvement.

Regarding South African postgraduate physiotherapy research conducted in the next five years

A range of strategies was reported by participants to ensure ongoing improvements in research. The most visionary theme to emerge was the need to use a broad professional group consensus and collaborative approach to identify and tackle core physiotherapy research problems pertinent to South Africa. The emergence of this theme in the context of this question suggests that this could be the framework from which a vision could emerge of South African evidence-based physiotherapy practice. From this followed the suggestion that broad cross-institutional and cross-disciplinary research teams and collaborations could be developed for the purpose of research ideas, proposals, grants, and writing papers. The need for greater funding for research activities was mentioned by all, and was iterated during discussions, in the context of the need for multidisciplinary, cross-institutional groups to conceptualize and conduct broad vision research.

We need broader research teams as these can always apply for big research grants, joint proposals, rather than individuals competing for a small pool of grants. P2

All participants mentioned several times in different contexts the need to make research an integral element of undergraduate training right from the first year. One participant also mentioned that undergraduate research programs must be conducive to fostering a life-long interest in the application of research in clinical practice. There was a general expectation by participants that research activities should produce publications, either from post-graduate research activities, or clinical/academic research activities. Two participants mentioned the need to recognize the time required to conduct and write-up research, and to position faculty members and post-graduate students to specifically focus on producing high quality publications.

It should be expected that at least one publication comes from each completed thesis and each completed research grant. P1

Maybe not one publication per person each year but get two or three people who can produce a publication, working together with master students you can be a co-author on your student's publication. Then maybe you can produce one publication per year. P2

In the context of discussions on the future for South African physiotherapy, the theme emerged of developing culturally relevant undergraduate and postgraduate curricula that recognized the health needs of South African communities. The need for good quality physiotherapy research was highlighted as essential for the continuation of profession, related to increasing competition from other health professions, and the need to be internationally recognized and competitive. The discussions around this area highlighted the need to decide on a broad direction and focus – the issues of following a clinical research path or a social rehabilitation path were flagged, with the associated costs of equipment, personnel, network development, expertise and time.

Research is essential for the continued existence of the profession, to keep the profession alive, because there are other alternative health sciences competing with physiotherapy. P1

The participants believed that there was limited shared vision between academics, clinicians or the physiotherapy professional association regarding production of evidence, or uptake of evidence into practice. The need for academics to lead the establishment of a physiotherapy vision was highlighted, as was the need for any vision to be subsequently debated and shared by all. The role of the professional physiotherapy association in establishing and facilitating a vision for South African research and evidence-based practice was unclear from the interviews, however what was clear was the need to involve the association in such discussions. Leadership by academics in establishing a vision was proposed by participants as a way forward because academics generally have more access than physiotherapists in any other arena to facilities, training and time for research. The participants all highlighted, at different stages in the interviews, the need to learn from the experiences of physiotherapists in other countries, and in particular be prepared to share experiences with others. The use of technology for communication, research and evidence-integration was flagged, for instance the use of satellite communication, electronic library facilities etc.

Getting an education committee together where the leaders in the research field of all universities get together on a discussion how they see South African research on the way forward maybe via satellite conference, where we should be able to share and learn a lot from each other. P2

We need more clinical post graduates activity research programs. We are making progress in social rehabilitation research but we also have clinical responsibilities, there is not much activity in clinical research at the moment. P3

The participants also stated on a number of occasions that research must become more in-depth and meaningful and that most current research has limited clinical relevance. This constrains clinicians from seeing the relevance of research in clinical practice and therefore the implementation of evidence into physiotherapy practice. Group research projects compared with small individual research projects, where each team member contributes towards the bigger project, was proposed as a way of conducting more meaningful research. A related comment was the need to involve clinicians in research projects and thereby facilitate research evidence uptake, and improve the clinical applicability of the research conducted by academics.

Barriers to improving research output provided useful pointers when determining vision and strategies for South African physiotherapy research and evidence-based practice. The lack of a big picture vision was again highlighted with respect to South African physiotherapy.

Academics and clinicians aren't identifying research opportunities (people working for years in an institution, not realizing they are sitting on a wealth of data). P1

The need for research mentors was highlighted and was likened to the use of clinical practice supervisors in clinics for undergraduate and postgraduate training. Adequate time to undertake research and funding to purchase time release to undertake research was highlighted by all participants, as was the need to develop adequate research skills, including better understanding of research methods and research writing. The interviews highlighted an underlying issue reflecting fear of failure when embarking on research, which potentially relates to lack of skill across a range of research activities. The need to strongly link with the professional association was flagged as was (again) the need to collaborate with other institutions (within and outside South Africa). The potential to identify core research opportunities relevant to South Africa and to capitalize on existing data sets and data collection opportunities was highlighted.

Linking with other institutions to get more funding, we should not duplicate each others work but learn from each other and work together. P3

Facilitators to improve research output

The interviewees identified the need for a vision and a long term development plan for research activity in South Africa, as well as succession planning (such as bringing back overseas graduates currently working abroad). Issues of understanding ethical practice in research and ensuring that research is conducted in an internationally recognized and ethical manner were highlighted, particularly with respect to obtaining informed consent by subjects. Involvement of younger researchers in research teams (at undergraduate and postgraduate levels) was seen as essential to the longevity of physiotherapy research uptake into clinical practice. Better training for higher degree supervisors was flagged to enhance postgraduate research quality, as was establishing long term compartmentalized faculty projects for staff and students.

Major barrier is mentors; we need more mentors, having people who are academics also publishing and doing research, acting as role models. P3

Stakeholders

Stakeholders in evidence-based practice in South Africa were identified as a range of organizations and groups, including the professional association, all tertiary training institutions for physiotherapists and wider health professions, the Department of Health, the community at large (tax payers), clinicians, students, medical research funders, and industry.

Training required for physiotherapists undertaking higher degree research to assist them in doing it better

It was noted that academics should be trained in supervising undergraduate and postgraduate students and that they should regularly update their knowledge and skills based on advances in research methodology. Academics teaching research methodology should also improve their level of teaching to ensure that students are able to understand abstract research concepts. It was pointed out by one participant that many postgraduate students and educators have difficulty in understanding research methodology and statistical concepts. Education in this area was identified as improved training in research methods (such as protocol writing, writing ethics applications, understanding different research processes, writing/ presentation skills, statistical literacy). The participants also highlighted the need to identify the level that individuals were at before training them, so that training could be pitched at the appropriate level so that research could be seen to be achievable.

Research committee reviewers of protocols, and ethics committees must have a certain standard. We need training in research methodologies for everyone particularly our research leaders, and training in research communication, to understand what will be expected for the work to be high quality. P2

Discussion

There was remarkable consistency in the interview findings, despite the interviewees having traveled different academic career paths. There was also little discrepancy between the researchers in their interpretation of the interview data into key themes. The consistency with which key themes occurred in the transcripts of these interviews indicates that despite different research, administrative and teaching experiences of the interviewees, their perspectives on South African physiotherapy research and vision for its future were congruent. Thus with only three participants, saturation of key findings occurred. This supports the external validity of the findings produced from this study, and suggests that the summary recommendations provide a valid platform for ongoing discussions across a wider forum of South African physiotherapy stakeholders. The tone of the interviews was generally hopeful about the future of South African physiotherapy professional growth, and its place in the global physiotherapy community. The participants' perspectives also reflected the constructs outlined in Western research into barriers to undertaking research and interpreting research into clinical physiotherapy practice. Key barriers and strategies to address them (most recently described by Schreiber and Stern⁶ and Iles and Davidson²) were flagged throughout the interviews from a South African perspective, for instance lack of focused training on research methodology relevant to clinical practice, lack of organizational supports to support evidence production and uptake, lack of sophistication in planning and conducting research, lack of dedicated time for research, and lack of clear long-term direction for relevant research activities. The congruence of these findings with Western perspectives on physiotherapy uptake of research evidence into clinical practice highlights the importance in the specific South African context of conducting research which assists in high quality policy development and clinical thinking, and which results in healthy communities.

Recommendations

The study findings highlight the need for a vision that rises above individuals, organizations and institutions, and which takes a nation-wide view of the relationship between research, clinical practice and community need. We provide these recommendations in anticipation of assisting efficient ongoing visionary discussions for South African physiotherapy.

It is clear that a shared South African physiotherapy research vision is urgently required, which is relevant to national issues, community needs, professional directions, and ownership. A shared vision must have short and long term components, and be linked to practical strategies, time frames and achievable outcomes. To support this process, recommendations for strategies to support a shared vision are:

- Establish a leadership group of South African physiotherapists who represent perspectives of all areas of physiotherapy activity (clinical, research, organizational, institutional, political) to assist in framing a vision and actioning strategies to achieve it
- Position South African researchers to learn from international research experiences so that research activities are forward thinking, build on past lessons and are cost-effective
- Establish institutional and organizational strategies where South African researchers and clinicians with practical and well-conceived research plans can be funded to focus on their research, and produce recognized deliverables such as peer-reviewed publications, international conference presentations, strong collaborations and networks that will assist further research opportunities, and funding to support ongoing research activities
- Establish practical and recognized links between researchers and clinicians which can assist in the production of useful evidence which can be readily implemented and impacts on clinical practice outcomes
- Embed practical research training into undergraduate curricula and make it relevant to clinical practice training, so that South African physiotherapy graduates are skilled in the practicalities of implementing research findings in clinical decision-making
- Seek research funding from sufficiently well resourced funding sources which support high quality research that can have long term impacts on South African training programs and communities
- Establish collaborative cross-institutional efficiencies regarding research resource usage and thus maximize research outcomes against costs of research activities

References

1. Bohanon RW, LeVeau BF. Clinicians' use of research findings. *Physical Therapy* 1986; 66: 45-50.
2. Iles R, Davidson M. Evidence-based practice: a survey of physiotherapists' current practice. *Physiotherapy Research International*. 2006;11(2): 93-103.
3. Piper M. Physiotherapy and research – future visions *Physiotherapy Canada*. 1991;43: 7-10.
4. Turner P, Whitfield TWA. Physiotherapists' use of evidence based practice: a cross-national study. *Physiotherapy Research International*. 1997;2(1): 17-29.
5. Sackett D, Straus SE, Richardson SW, Rosenberg W, Haynes BR. Evidence-based Medicine. London: Churchill Livingstone, 2000.
6. Schreiber J, Stern P. A review of the literature on evidence-based practice in physical therapy. *The Internet Journal of Allied Health Sciences and Practice*. 2005;3(4): ISSN 1540-580X.
7. Ballin AJ, Breslin WH, Wierenga KA, Shepard KF. Research in physical therapy: philosophy, barriers to involvement, and use among California physical therapists. *Physical Therapy*. 1980;60: 888-895.
8. Metcalfe C, Lewin R, Wisner S, Pery S, Bannigan K, Moffett JK. Barriers to implementing the evidence based in four NHS therapies. *Physiotherapy*. 2001;87: 433-441.
9. Jette D, Bacon K, Batty C, Carlson M, Ferland A, Hemingway R et al. Evidence-based practice: beliefs, attitudes, knowledge and behaviours of physical therapists. *Physical Therapy*. 2003;8: 786-805.
10. Piennar ED. The availability of health information in South Africa. *Medinfo*. 1995;8(2): 1638.
11. Frenk J. Bridging the divide: global lessons from evidence-based health policy in Mexico. *Lancet*. 2006;368:954-61.
12. Corless IB, Nicholas PK, Wantland D, McInerney P, Ncama B, Bhengu B, McGibbon C, Davis S. The impact of meaning in life and life goals on adherence to a tuberculosis medication regimen in South Africa. *Int J Tuberc Lung Dis*. 2006;10(10):1159-65.
13. Sidley P. South Africa sidelines its health minister on AIDS issues. *BMJ*. 2006;14: 333(7572):774.
14. McIntyre D, Gibson L. Putting equity in health back onto the social policy agenda: experience from South Africa. *Soc Sci Med*. 2002;54(11):1637-56.
15. Eales C. Editorial – Change: 'Make or become different' or simply making a difference! *Physiotherapy Research International*. 2000;5(2):iii-v.
16. Levin K. 'I am what I am because of who we all are': international perspectives on rehabilitation: South Africa. *Pediatr Rehabil*. 2006;9(3):285-92.
17. Oldewage-Theron WH, Dicks EG, Napier CE. Poverty, household food insecurity and nutrition: Coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health*. 2006;120(9):795-804.

18. Mthabeng DJ. Research and the physiotherapy profession in South Africa-Reflections on a pilot study. *South African Journal of Physiotherapy*. 2003;59 (4) 9-14.
19. Rice PL, Ezzy D. *Qualitative research methods: A health focus*. South Melbourne: Oxford University Press, 1999.
20. Equity in South Africa: HST Update. Vol. 49. Available at:
http://209.85.135.104/search?q=cache:K_e2iQ9Vi4J:www.hst.org.za/uploads/files/upd49.pdf+physiotherapy+student+intake+south+africa&hl=en&gl=za&ct=clnk&cd=2 Accessed 24 October 2006.
21. HPCSA: Health Professions Council of South Africa. Available at
<http://www.hpcsa.co.za/hpcsa/UserFiles/File/F206ABIokineticTrainingGuidelines.doc>. Accessed 24 October 2006.