

## Learning experiences of physiotherapy students during primary healthcare clinical placements

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**Background.** Primary healthcare (PHC) is necessary to address the health needs of communities. It creates the opportunity for the attainment of curricular outcomes through community-based education. Appropriate learning opportunities are needed to enable students to develop the necessary skills to attain these outcomes.

**Objectives.** To describe the learning opportunities occurring during physiotherapy PHC placements and to explore the role the learning environment and learning opportunities played in attaining the outcomes for the placements.

**Methods.** A descriptive case study was conducted using different strategies for data collection and analysis. Participants completed a record sheet to indicate time spent on different activities. Observational site evaluations, individual interviews with site representatives and focus-group discussions with students were conducted to explore their perceptions about PHC clinical placements.

**Results.** The results indicated that the participants valued PHC placements as powerful learning environments. However, students did not have the opportunity to engage satisfactorily in activities that foster the principles of PHC. Participants acknowledged that several resource constraints existed in this context; however, they identified several potential valuable learning opportunities. Students suggested curriculum-specific strategies needed to prepare them for PHC, and recognised the need for healthcare services in the communities they served.

**Conclusion.** While the PHC learning environment was rich and authentic, learning opportunities need to be optimised to enable students to fully reach the outcomes for the placements. Learning opportunities need to be crafted to foster collaborative learning, interdisciplinary learning, community engagement and empowerment.

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The attainment of clinical competence is a key outcome of physiotherapy programmes worldwide. A goal of the physiotherapy undergraduate programme at Stellenbosch University (SU) is that new graduates will be able to function as reflective practitioners in the South African (SA)

healthcare context. Therefore, optimal learning opportunities are crucial for students to develop the necessary skills to attain this outcome. Clinical education, a situated learning experience, is acknowledged as a powerful learning experience to develop students' skills and professional knowledge through social interaction.<sup>[1]</sup> Learning thus occurs within the community of practice (clinical environment) and necessitates participation and engagement to develop competence. Market expectations of physiotherapy reflect changing demands in competencies for graduates. A greater focus is now being placed on client centeredness, community-based care and management of chronic diseases.<sup>[2]</sup>

In SA the healthcare context has been reformed to emphasise primary healthcare (PHC). PHC refers to healthcare that is provided in the community, addressing the health needs of the community within the community.<sup>[3]</sup> The components of PHC include community participation and empowerment while integrating preventive, promotive, curative and rehabilitation services. Improving access to healthcare and developing PHC has been at the centre of transforming healthcare.<sup>[4]</sup> To facilitate this transformational process for healthcare providers in SA, the Department of Health introduced a year-long compulsory community service for all newly qualified healthcare practitioners, including physiotherapists.<sup>[4]</sup> New physiotherapy graduates are thus placed in rural and under-resourced regions in an attempt to redistribute services to underserved communities.

It is imperative that new graduates are equipped with the necessary skills to function in such contexts. Therefore, physiotherapy curricula need to include the philosophy of community-based education (CBE) to develop the knowledge, technical and affective skills needed in a PHC context.

CBE is advocated as necessary to equip health professionals for future and changing healthcare systems, to be responsive to community needs and to prepare students for future professional work at the community level.<sup>[5-7]</sup> CBE is described as learning activities that occur in the community, through active engagement with community members, while providing healthcare relevant to the community needs. PHC placements are thus ideally suited for learning and applying the principles of CBE. CBE has several advantages for the students and the community concerned. For students, the advantages include: opportunities to interact with people from different backgrounds; developing social responsibility; planning and delivery of healthcare interventions with the community; developing appropriate knowledge and skills; deepening understanding of health and social services; promoting client-centered care; enhancing interdisciplinary teamwork; and increased recruitment into PHC.<sup>[2]</sup> For communities, advantages are: improved access to healthcare; the specific needs of the community are considered and addressed; and participation in the care process.<sup>[5]</sup> CBE thus reinforces a strong social justice ethic, and provides opportunities to develop and use competencies that are needed to improve the health of citizens and society.<sup>[8]</sup>

In the SA context, two studies investigated the perceptions of new physiotherapy graduates about their preparedness for community service.<sup>[4,9]</sup> Two other studies evaluated physiotherapy students' experiences about their community-based clinical placements,<sup>[10,11]</sup> while another study involved a document analysis of physiotherapy CBE curricula.<sup>[12]</sup> These studies found

**Table 1. The learning outcomes and opportunities for the primary healthcare (PHC) placements**

Outcomes	Learning opportunities						Daily duties community health centre
	Home visits	Occupational visits	Therapeutic classes	Educational sessions	Screening	Interdisciplinary sessions	
• Source appropriate information to plan a client assessment	x	x	x	x	x	x	x
• Conduct an interview with client/carer	x	x			x		x
• Plan, perform and motivate a physical evaluation of a client	x	x	x		x		x
• Develop a problem list focused on main problems and rehabilitation needs of the client	x	x	x		x		x
• Formulate appropriate rehabilitation goals with the client	x	x	x	x	x		x
• Select and perform appropriate intervention strategies for optimum rehabilitation	x	x	x	x	x	x	x
• Use appropriate outcome measures	x	x	x	x		x	x
• Teach clients/carers appropriate home/work interventions	x	x					
• Advise clients/carers about applicable management	x	x	x	x	x	x	x
• Analyse home/work environments and suggest appropriate recommendations	x	x					
• Present effective therapeutic classes			x	x			
• Refer clients appropriately						x	x
• Scientifically document all findings	x	x	x	x	x		x
• Become acquainted with safety and emergency procedures in the PHC environment	x	x				x	x

CBE to be a valuable learning experience which furthered the students' understanding of social determinants of health.<sup>[10,11]</sup> However, these studies identified that students needed more preparation to succeed in the complex health environment of community physiotherapy.<sup>[4,9]</sup> In particular, a focus on the social, political and economic factors that impact health, the local burden of disease and cultural competence was advocated. The need for interdisciplinary collaboration was also highlighted. Moreover, Ramklass<sup>[4]</sup> advocates that curriculum design needs to be dynamic and responsive to local and global policies on CBE.

The changes in healthcare provision in SA, the complexity of the healthcare system and the SU Division of Physiotherapy's accountability towards its graduates and the profession, motivated the need to determine if the division's PHC placements offered the necessary CBE components. The objectives of this study were to describe the learning opportunities occurring during physiotherapy PHC placements, and to explore the role the learning environment and learning opportunities played in attaining the learning outcomes for the placement.

## Context of the study

Physiotherapy students at the Faculty of Medicine and Health Sciences (FMHS), SU, SA, rotate in groups of 2 - 4 students through a 6-week PHC placement in their final year. At the time of the study, four different PHC

clinical sites were used; one was rural and three were in peri-urban areas. Two of the clinical sites were based at community health centres (CHCs) and students used the CHC as their base. The other two sites lacked a CHC and students organised their services from their vehicles. At the latter two sites, the students served as the primary service providers of physiotherapy in the absence of permanently employed physiotherapists. Students were supported by a clinical facilitator from SU, and where applicable, also by the CHC physiotherapist. The outcomes for these placements are summarised in Table 1.

## Methods

### Research design

A descriptive, situational case study was conducted, to provide an in-depth description of the PHC clinical setting.<sup>[13]</sup> A mixed-method study generated qualitative and quantitative data which obtained input from different stakeholders, using different strategies.

### Population

All final-year physiotherapy students completing their PHC rotation during 2006 were eligible to participate in the study ( $n=40$ ), as were all physiotherapy clinical facilitators involved in these placements ( $n=6$ ). Different data collection activities and different sampling strategies were used, as explained below.

## Data collection and procedures

All data were collected during the last two clinical rotations of the year. The data collection activities included: student record sheets; site visits (observation using a site evaluation form); interviews with clinical facilitators; and student focus-group discussions (FGDs).

### Student record sheets

To determine the type of activities that students were involved in during their PHC placement, and how much time they spent on different activities, an activity questionnaire sheet was developed. Purposive sampling was used, to include those students who were on the PHC placement at that specific time to generate realistic data for the timeframe, and to limit recall bias. Students on PHC placements ( $n=16$ ) were invited to complete the two-page record sheet. The record sheet was set up by one member of the research team, and was checked and adapted by two other members. The students were trained in how to complete the data sheet to aid understanding and correct completion. The activities covered in the record sheets included: new patient (evaluation); individual patient treatment; group exercise classes; promotional talks; home visits; screening in clinics; ward rounds; documentation; feedback between team members; academic demonstrations; clinical supervision; and other. Participants indicated the time spent on different activities in units of 10 minutes.

### Site visits and interviews with site representatives

Different observational teams among the research group, including one external auditor, were assembled to visit the different PHC sites. A site evaluation form was developed by one member of the research team to guide the observational process. This form focused on facilities, apparatus, safety and security. The procedure for the site visits was as follows: An appointment for a visit was made; the team visited the site, and completed the site evaluation form; following the observation, an interview was conducted with the site representative (physiotherapy clinician and/or clinical supervisor). This interview focused on specific aspects identified on the site evaluation form, namely: staff employed at the site; interdisciplinary activities; community outreach activities; treatment protocols; patient profile; administration and management. These themes were addressed to provide a holistic

**Table 2. Main interview schedule for the student focus-group discussions**

- What is your opinion of the clinical placements you were on?
- What aspects of the clinical placements did you enjoy?
- What value did the clinical placements add to your learning?
- What were the problems that you encountered during clinical placements?
- What suggestions do you have to improve the clinical placements?
- Do you think that interdisciplinary learning takes place during clinical practice placements?
- Tell me about how you experience the service delivery part of your clinical training?
- How did this service delivery impact on your learning experience during the placement?

picture of the healthcare setting. At the end of the visit, the visiting team, together with the site representative, developed a SWOT (strength, weakness, opportunity and threat) analysis of the site. This unique approach was used to extract the data into the significant SWOT aspects as relevant for physiotherapy undergraduate training.

### Focus-group discussions with students

Four semi-structured FGDs were conducted by an independent interviewer. All final-year students were invited to participate in FGDs about their clinical experiences. FGDs were conducted after the final clinical placements. Four focus groups, consisting of ten participants per focus group, were invited to participate. Topics discussed are listed in Table 2. Appropriate probing questions were used to develop a deeper understanding of participants' accounts. FGDs were conducted at the Division of Physiotherapy, SU, in English and/or Afrikaans according to the choice of the participants, and each lasted approximately 40 minutes.

### Data management and analysis

The quantitative data generated by the time sheets were recorded in a purpose-built data collection sheet in MS Excel. Data were then analysed on a statistical program (Statistica 7), using proportions.

The qualitative data generated by the site visits, combined with the interview of the site representative, were deductively analysed using the SWOT analysis as an analytical framework, as explained in the previous section. The qualitative data generated by the students' FGDs were recorded using a digital voice recorder and were downloaded and saved after the FGDs. Unique serial numbers were given to each data set. The FGDs were then transcribed by an independent transcriber, and analysed by an independent

and experienced research assistant using content analysis.<sup>[13]</sup> This process included: familiarising oneself with the data; identifying themes; creating a theme list (codebook); coding and categorising the data; interpretation of data; and checking. The coding and themes were checked by the research team to aid trustworthiness. For the purpose of this manuscript, data pertaining to PHC were extracted.

Data triangulation was done by using various data sources (students and clinical educators), methodological triangulation by using various techniques and instruments of data generation, and investigator triangulation by discussing findings within the research group. Triangulation is a valuable means of ensuring the credibility of the research as data are seen from different perspectives, and data may be corroborated.<sup>[14]</sup>

### Ethical considerations

The protocol for the study was approved by the Health Research Ethics Committee (number N05/08/144) at FMHS, SU, SA. Permission to undertake the study was obtained from the Division of Physiotherapy chairperson. Persons eligible to participate in the study were contacted and the aim and procedures of the study were explained. Written informed consent was obtained from participants. The following measures were taken to ensure participant confidentiality: no identifying information was expected on the time sheet; the names of the clinical sites are not published; the voice recordings of interviews and the transcripts were coded using non-identifying particulars.

## Results

This section elaborates on the main findings gathered through the student record sheets, observational site visits and the FGDs with participants.

## Student record sheets

Fourteen of 16 students completed record sheets (88%). The data for all four PHC sites had the same pattern, and were therefore combined (Fig. 1). Students spent most of their time performing individual treatment sessions. This activity communicates a strong focus on the curative/treatment aspect of healthcare service. Little time was spent on promotive and preventive strategies such as group classes, educational talks, home visits and occupational (work) visits. This lack of focus on community participation and empowerment was not congruent with the philosophy of PHC.

## Observational site visits and site representative interviews

Table 3 provides the combined SWOT matrix of the PHC sites as constructed from the observational site visits and site representative interviews. The strength of the PHC placements

was the variety that it offered. Staff shortages, as well as the lack of facilities and equipment, were shared weaknesses. The range of learning opportunities was diverse and abundant, ranging from the outright need for the healthcare services, to possibilities of participation in community activities. Staff and student burnout, as well as safety concerns, were identified as important threats.

## FGDs with students

Students' perceptions of PHC clinical placements are summarised in Table 4. The main theme, sub-theme and motivating verbatim quotes are provided. For the purpose of this article, some quotations have been translated from Afrikaans to English by the primary author. Five main themes emerged:

- Preparation for PHC placements.
- Guidance and supervision is much appreciated, but has not been a priority.

- Learning opportunities are abundant, but are not always aligned with the outcomes.
- Interdisciplinary learning advantages and disadvantages.
- Preparation for the future clinical practice.

## Discussion

The main findings of the study are that while the PHC learning environment was rich and authentic, the learning opportunities needed to be optimised to enable students to fully reach all outcomes for the placement.

The activities that students participated in as part of their placement did not continually reflect a focus on PHC, as illustrated by Fig. 1 and Table 3. It was clear that amendments in learning opportunities would be required to optimise attainment of outcomes. Indeed, a revisit of the outcomes of the PHC placements was also pertinent. To be aligned with the philosophy of PHC, learning activities and outcomes should include a focus on community participation and empowerment through preventive, promotive and rehabilitation activities.<sup>[3,4]</sup> Participants in this study reported feeling unprepared for the activities and challenges that they faced during the PHC placements and made suggestions for curriculum content that would aid in their preparation. The following preparatory components were suggested: clarifying expectations for PHC; foundational aspects of group therapy and home-based care; social determinants of health; and the contextual factors of the communities being served. These suggestions by participants are congruent with literature about preparation for PHC clinical rotations.<sup>[2,4,5,8]</sup>

Participants acknowledge the PHC placement as an authentic and rich learning environment. This environment was reported to create valuable learning opportunities that transcended personal and professional growth. However, several resource

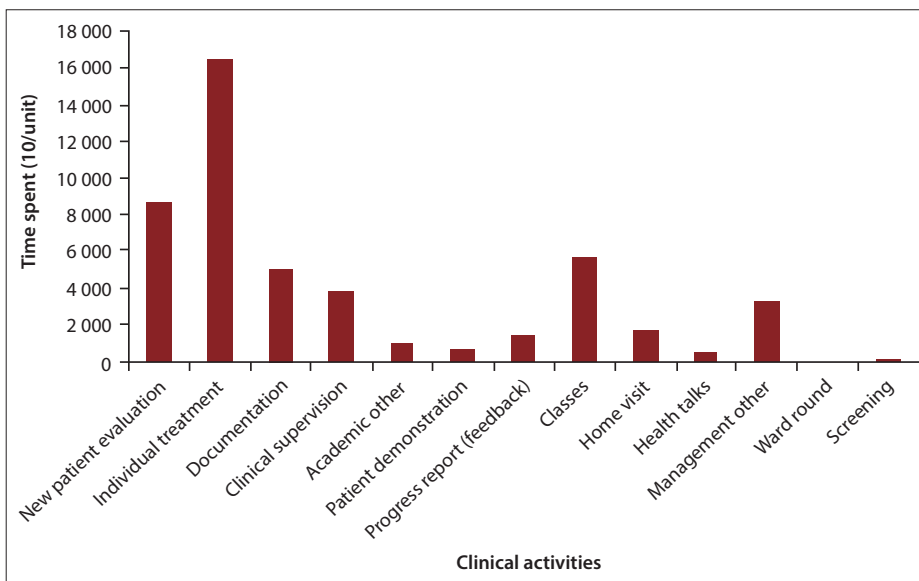


Fig. 1. Summary of the time sheets of students on PHC placements (10-minute units per day).

Table 3. Combined SWOT analysis for the four physiotherapy PHC placements

Strength	Weakness	Opportunity	Threat
Full-time physiotherapist employed (at two sites)	No physiotherapist employed (at two sites)	Enough patient numbers	Staff need/would like more support from employer
Multiple professions at the site	Insufficient space	Diversity of patients	Multiple locations may lead to fragmentation
Reasonable teamwork	Lack of equipment/lack of suitable facilities	Presence of volunteer workers	Little focus on PHC at one site
Established site	Insufficient staff to cope with patient numbers, administration and students	Interdisciplinary activities	No central work location (base) for students at the sites where there was no CHC
Variety of clinics	Little guidance and support for students	Community health workers/home-based carers	Safety and security concerns regarding parking
Strong PHC focus (at three sites)	No cardio-pulmonary rehabilitation	Volunteers	
Variety of activities and classes		Prospect of establishment of services not yet offered	
Good referral system in place (one site)			

**Table 4. Findings from student interviews**

Main theme	Sub-theme	Verbatim quotes
Preparation for PHC	Skills ( <i>not</i> ) taught in curriculum	'It is mentioned that primary care is important, but there is not much emphasis on it and what they [educators] want us to do on a primary care block.' (5.1) <i>translated</i> 'They want us to present group classes, but we are never really taught to do it.' (5.1) <i>translated</i>
Guidance and supervision	Assistance/guidance to students	'So you get there, and you have your basic theoretical knowledge ... but no guidance.' (5.1) <i>translated</i> 'The physiotherapists are very busy on primary care blocks, there are lots of patients. They are often too busy to help students.' (5.1) <i>translated</i>
	Focus on patient care v. focus on student learning	'And although they [clinical staff] want to help and they really want to be accessible, ...' (5.2) 'We had the best; you could always go and ask, really. But every now and then you could see there was so much going on that it was just difficult.' (6.1)
	Work overload	'I don't think there's a lack of understanding on our part that, you know, that this person [clinical staff] is overloaded.' (6.1) 'All our diaries are booked with patients 3 weeks in advance, it is fully booked. I am lucky if I see a patient twice in these 6 weeks. So you can't see how the patient progresses. At the end of the block you can't refer the patient, because everybody is fully booked. The patients get angry. It is frustrating.' (6.1) <i>translated</i>
Learning opportunities	The clinician as a source	'The other thing is, that even though it's such a busy place, I've had one of the best, I've learnt the most from that clinical supervisor. She told us, she's very busy, but she made time for us.' (5.2) 'But for me, what is more valuable is the human resource. The person, be it the clinician who works there, or your supervisor. Just that you have somebody that is accessible' (6.1)
	Alignment with outcomes	'I never did a home visit on my block at ...' (5.4) <i>translated</i> 'If I get a home visit in my final exam, I will not know what is going on. So maybe one should do a complete home visit.' (5.4) <i>translated</i>
Interdisciplinary learning	Formal interdisciplinary sessions are valuable, but can be misused	'I think it is a showcase for the medical students so that they can see what physiotherapy and occupational therapy are about, and I don't mind helping other people learn, but for me ... I learnt nothing.' (5.2)
	Informal interdisciplinary discussions are valuable	'We see a patient and then discuss what each would have done, the occupational therapist, the medical student. So, it was good.' (5.2) <i>translated</i> 'This is a problem, as everybody wants us to see the patient in a multidisciplinary team, but nobody really makes time for it in our day.' (5.2) <i>translated</i> 'It was nice to talk to the occupational therapist there. We spoke about a patient and could see where we overlap.' (5.4) <i>translated</i>
Preparation	For community service	'For next year it is important, because you might be working in a clinic, and would then know how to manage apparatus and do registers.' (5.3) <i>translated</i> 'The lack of equipment forces us to be creative. Next year or some time we will be working in the community, but is difficult to say how effective you might be if you don't have all the equipment.' (6.1) <i>translated</i>
	For practice management	'In primary care it was nice to see how the physiotherapist runs the practice. It was good to see how it works, how to complete the forms, how to order mobility aids, how to organise the practice, how to make posters and so on.' (6.2) <i>translated</i>

constraints were identified as part of this environment. The infrastructure of all placements was limited, and this influenced learning in positive and negative ways. This finding is in keeping with that of Skoien *et al.*,<sup>[1]</sup> who found that physical surroundings such as space and materials can either inhibit or facilitate learning. The resource-constrained environment in this study challenged participants' structured approach to tasks. However, these challenges provided students with the opportunity to think creatively and laterally to solve problems, as reported by Taukobong.<sup>[11]</sup> The challenge of a resource-constrained environment is a recurring theme in the literature regarding physiotherapy PHC, and includes (as also identified in this study) lack of equipment, facilities, staff constraints and safety concerns.<sup>[4,9,11]</sup>

Despite the abovementioned resource constraints, the information gained from the site visits and interviews emphasised the tangible healthcare needs

of the community being served. This need was evident in the sheer number of patients who sought healthcare. Clinical staff and students reported feeling overwhelmed by the community needs. As a result, provision of healthcare focused on service delivery in the form of direct clinic-based patient care, and subsequently not on community participation (Fig. 1). Consequently, several learning opportunities appropriate for students were not identified, optimised or utilised. The tension noted between providing optimal patient care and the creation of sufficient learning opportunities is not unique to this study and is substantiated by other research findings.<sup>[15,16]</sup> The challenges of high patient volumes and minimal resources, together with need for sufficient physiotherapy staff support and improved management systems at PHC level, have been reported in several studies.<sup>[4,9]</sup> It is therefore not surprising that a lack of staff support was identified as a threat (Table 3).



Accordingly, Boelen and Woollard<sup>[8]</sup> recognise the lack of staff in PHC as a global crisis.

Several positive aspects of the PHC placements were acknowledged by participants. These placements prepared future graduates for community service and practice management. Preparing for community service has been cited as an important outcome of CBE;<sup>[6]</sup> however, at the time of the study, it was not an outcome of the PHC placement. The PHC sites were full of untapped learning opportunities. In particular, the opportunity for formal and informal interdisciplinary learning sessions was identified by students and staff. Interdisciplinary collaboration was described as the backbone of community physiotherapy.<sup>[9]</sup> However, the participants in the aforementioned study stated that in practice, team members are often ignorant about each other's roles. Furthermore, Taukobong<sup>[11]</sup> found a lack of focus on interdisciplinary approaches during CBE in PHC. The study findings strengthen the need to include interdisciplinary learning sessions in the curriculum to foster collaboration and patient-centered care.<sup>[2]</sup> Participants in this study warned that careful monitoring of interdisciplinary sessions would be required to ensure benefit for all stakeholders.

This study found the PHC learning environment to be complex and multimodal, where the situated context influenced learning in multiple ways. Several changes are needed to transform PHC placements to be able to address learning outcomes and the needs of the students, while considering the needs of the patients and staff. Indeed, the learning ecosystem needs to be taken into account when designing a curriculum.<sup>[17]</sup> The ecosystem approach implies that the needs of the local and broader community should inform curriculum design and implementation to enhance social accountability and holistic patient care.

The study provides valuable lessons to be learned from the analysis of learning opportunities in PHC placements, although the context investigated in this study was specific and limited to a particular setting. The need for regular curriculum review to ensure that the provided learning opportunities sufficiently address learning outcomes was clear. The PHC placement was successful in increasing awareness among students about future professional work at the community level and responsiveness to community needs. These aspects were cited as important outcomes of CBE, and needed to be included in the outcomes of the PHC placement.<sup>[6,7]</sup> Although various role players were consulted in the review process, future studies should obtain information from different stakeholders, such as patients, community members and organisations.

## Conclusion

The learning opportunities that final-year physiotherapy students experienced as part of their CBE placements needed to be expanded. To optimise PHC placements, learning opportunities need to be crafted to foster collaborative learning, interdisciplinary learning, community engagement and empowerment.

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## References

1. Skoien AK, Vagstol U, Raaheim A. Learning Physiotherapy in clinical practice: Student interaction in a professional context. *Physiotherapy Theory and Practice* 2009;25(4):268-278. [http://dx.doi.org/10.1080/09593980902782298]
2. Lindquist I, Engardt M, Garnham L, Poland F, Richardson B. Physiotherapy students' professional identity on the edge of working life. *Med Teach* 2006;28(3):270-276. [http://dx.doi.org/10.1080/01421590600605272]
3. Keleher H. Why primary health care offers a more comprehensive approach to tackling health inequalities than primary care. *Australian Journal of Primary Health* 2001;7:57-61. [http://dx.doi.org/10.1071/PY01035]
4. Ramklass SS. Physiotherapists in under-resourced South African communities reflect on practice. *Health Soc Care Community* 2009;17(5):522-529. [http://dx.doi.org/10.1111/j.1365-2524.2009.00869.x]
5. World Health Organisation. *Primary Health Care – Now More Than Ever*. 2008. <http://www.who.int/whr/2008/en/> (accessed September 2012).
6. Okayama M, Kajii E. Does community-based education increase students' motivation to practice community health care? A cross sectional study. *BMC Med Educ* 2011;11(1):1-6. [http://dx.doi.org/10.1186/1472-6920-11-19]
7. Ezzat E. Role of the community in contemporary health professions education. *Med Educ* 1995;29 Suppl 1:44-52. [http://dx.doi.org/10.1111/j.1365-2923.1995.tb02887.x]
8. Boelen C, Woollard B. Social accountability and accreditation: A new frontier for educational institutions. *Med Educ* 2009;43(9):887-894. [http://dx.doi.org/10.1111/j.1365-2923.2009.03413.x]
9. Mostert-Wentzel K, Frantz J, van Rooijen AJ. A model for community physiotherapy from the perspective of newly graduated physiotherapists as a guide to curriculum revision. *African Journal of Health Professions Education* 2013;5(1):19-25. [http://dx.doi.org/10.7196/AJHPE.203]
10. Futter M. Developing a curriculum module to prepare students for community-based physiotherapy rehabilitation in South Africa. *Physiotherapy* 2003;89(1):13-24. [http://dx.doi.org/10.1016/S0031-9406(05)60665-7]
11. Taukobong NP. Community based clinical program: The Medunsa physiotherapy students' experience. *South African Journal of Physiotherapy* 2004;60:7-10.
12. Mostert-Wentzel K, Frantz J, van Rooijen AJ. Status of undergraduate community-based and public health physiotherapy education in South Africa. *South African Journal of Physiotherapy* 2013;69:1-10.
13. Mouton J. *How to succeed in your masters and Doctoral Studies: A South African Resource Book*. Pretoria: Van Schaik Publishers, 2001.
14. Frambach JM, van der Vleuten CPM, Durning SJ. AM Last Page: Quality criteria in qualitative and quantitative research. *Acad Med* 2013;88(4):552.
15. Ladyshevsky R, Barrie SC, Drake VM. A comparison of productivity and learning outcome in individual and cooperative physical therapy clinical education models. *Phys Ther* 1998;78:1288-1298.
16. Currens JB. The 2:1 clinical placement model: review. *Physiotherapy* 2003;89(9):540-554. [http://dx.doi.org/10.1016/S0031-9406(05)60180-0]
17. Van Schalkwyk S, Bezuidenhout J, Burch VC, et al. Developing an educational research framework for evaluating rural training of health professionals: A case for innovation. *Med Teach* 2012;34(12):1064-1069. [http://dx.doi.org/10.3109/0142159X.2012.719652]