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Community-based education: a case study of the MED 113 Expo at the University of the Free State

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Complaints that health professionals do not address the needs of society have necessitated new methods of teaching and learning. The community-based education (CBE) approach could address these concerns. The aim of this study was to determine if community-based activities could help students to integrate theory and practice, or influence their attitudes and behaviour towards the community. It was a quantitative study including a literature review and questionnaires. The results yielded a 75.7% positive response with regard to the integration of theory and practice and a 77.9% positive response in terms of changed attitudes towards the community. Recommendations are made on changes to the CBE activities of MED 113 in order for it to serve as a model for other CBE modules at the University of the Free State.

Samelewingsgebaseerde onderrig: 'n gevallestudie van die MED 113-Expo aan die Universiteit van die Vrystaat

Klagtes dat professionele gesondheidswerkers nie genoeg aandag gee aan die behoeftes van die samelewing nie, het nuwe metodes van onderrig en leer genoodsaak. Samelewingsgebaseerde onderrig (SGO) is een van die onderrigmetodes wat hierdie probleme kan oplos. Die doelwit van die studie is om te bepaal of samelewingsgebaseerde aktiwiteite studente kan help om teorie en praktyk te integreer, en houdings en gedrag teenoor die samelewing te beïnvloed. Dit was 'n kwantitatiewe studie wat 'n literatuurstudie en die voltooiing van vraelyste ingesluit het. Die resultate het 'n 75.7% positiewe terugvoer aangedui ten opsigte van die integrasie van teorie en praktyk en 'n 77.9% positiewe terugvoer oor die verandering in houding teenoor die samelewing. Aanbevelings ten opsigte van veranderings tot die SBO-aktiwiteite van MED 113 is gemaak om as model te gebruik in ander SBO-modules aan die Universiteit van die Vrystaat.

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In recent years there have been major changes in health and education systems, both within the Republic of South Africa and globally. International committees, workshops and declarations from organisations like the World Health Organisation (WHO) and the World Federation for Medical Education (WFME) have reported on the importance of addressing community and national needs when developing curricula (WHO 1994, WFME 1993). Other aspects of importance are local needs, resources and facilities, as stated in the Cape Town Declaration of 1995 (WFME 1995). The Yaounde Declaration of 1994 stressed the importance of addressing issues such as ethics, community needs, leadership and a team approach in medical education (WHO 1994).

During the re-structuring process and the development of Curriculum 2000, the new undergraduate medical education programme implemented at the University of the Free State in 2000, the guidelines and requirements set by the South African Qualifications Authority (SAQA) and the Health Professions Council of South Africa (HPCSA) were followed. Curriculum 2000 is an integrated five-year modular programme consisting of three phases. The Community-based Education (CBE) component of the programme is integrated into core modules in all three phases.

The rationale for the programme is to deliver doctors who can render a professional service, that is, who have the knowledge, skills, professional thinking, behaviour and attitudes to practise as doctors and health care managers in all aspects of medicine and health care (School of Medicine 2000: 3).

CBE is one of the educational methods referred to in the SPICES Model of Harden and Dunn (Hamad 2000: 22) that can be utilised as an educational tool in an innovative curriculum. Harden views six educational strategies (student-centred, problem-based, integrated, community-based, elective and systematic learning) as a continuum, with each medical school finding its own position along the spectrum (Hamad 2000: 22).

Specific objectives were set for the CBE activities in Curriculum 2000. They focus on key concepts such as learning (knowledge), training (skills) and moulding (attitudes and behaviour) (School of Medicine 2000: 4). This supports the view of the British General Medical Council:

> [A]ttitudes of mind and of behaviour that befit a doctor should be inculcated, and should imbue the new graduate with attributes appropriate to his/her future responsibilities to patients, colleagues and society in general (General Medical Council 1993: 23).

Curriculum 2000 aims to achieve specific attitudinal objectives by means of CBE. The document "Education and training of doctors in South Africa", compiled for the Medical and Dental Professional Board in March 1999, lists certain objectives and recommendations relating to the attitudes and behaviour to be nurtured in medical students. These include respect for colleagues and patients irrespective of race, culture, background, gender, or way of life; an awareness of the importance of a community-based approach and service rendering; a willingness to participate in reflexive and peer evaluation, and the ability to work in a multi-disciplinary team (Medical and Dental Professional Board 1999: 8).

Specific attitudes that should be emphasised include a desire to serve humanity, respect for all human rights, recognition of ethical values, a community orientation, and a willingness to adapt to local circumstances and changing situations. In showing commitment to their studies, students should also demonstrate that they would be committed doctors (Medical and Dental Professional Board 1999: 11). An important aspect of undergraduate studies is the improvement of behavioural skills, including communication skills. Communication does not mean simply transmitting knowledge but actually building a relationship based on mutual understanding and participation (Curtoni 1999: S34).

At the stage when this research was undertaken, the Faculty of Health Sciences had not yet formulated and documented policy as to its perception of the definition of CBE, the duration of time to be spent on CBE, or the human and physical resources to be made available for CBE. The challenge was to facilitate the development of a model for CBE and then to formulate a policy on CBE within the School of Medicine. The selection of sites, the learning objectives identified for CBE, and the orientation of academics, service providers and communities regarding the outcomes and objectives were essential if the CBE experience was to be relevant. The communities selected to participate in the CBE activities varied. A high percentage of the Mangaung community has a great need for Primary Health Care (PHC) services. Students are exposed to these communities to familiarise them with the population they will serve as qualified doctors and to orientate them towards the PHC approach. Participating non-governmental organisations (NGOs) also serve people with specific needs, and students are exposed to these populations. These groups with special needs are often marginalised

and students must understand the need for equitable, accessible services for all groups.

Complaints from communities about health professionals who do not address their needs, the unfavourable ratio of specialists to primary health care professionals, and the fact that human resources in health services are concentrated in the private sector, have inspired the exploration of new methods of teaching and learning. CBE is one method that could address these concerns. Changes to the curricula were designed to attract and retain professionals in the public service (Van Rensburg & Van Rensburg 1999: 218). Patients referred to specialised tertiary settings represent only 1% of the spectrum of patients normally seen by physicians in the community (Schmidt *et al* 2000: 8). Students are curatively inclined and are rarely taught how to approach the 99% of problems they were not exposed to during their training. In specialist disciplines such as internal medicine, surgery and so on, there is a lack of teaching time, material and commitment for teaching students about commonly occurring PHC problems. Some diseases and problems require special care and need to be addressed by means of a team approach, with the patient as an active participant in the management of the problem, not just a recipient of treatment modalities. Secondly, students graduating from institutions where most training has been done in specialised tertiary academic settings prefer to work in private practice and in environments with adequate technical resources as well as educational facilities for their children (Schmidt *et al* 2000:8). This leads to a very uneven distribution of doctors and inequitable access to health care in different areas. A survey done in South Africa during 1998 indicated that, of a total population of 41 660 406 people, 33 907 683 (81%) were dependant on the public sector for health services. Of the 27 551 medical practitioners, 7 616 (27,6%) worked in the public sector and 19 935 (72,4%) in the private sector (Van Rensburg & Van Rensburg 1999: 214).

"Community-based activities are viewed by many as soft sciences, as side issues and sometimes as a waste of time" (Magzoub & Hamad 2000: 246) A concern is that students could have the impression that CBE activities are a less important aspect of the curriculum than their formal lectures and academic hospital rotations.

1. Overview of the UFS MED 113 CBE module

In theoretical sessions first-year medical students were briefed on community entry, health promotion, the forces that constitute communities, the development of brochures and posters, group work, conflict management, trans-cultural interaction, leadership and communication skills. For the CBE practical activities that preceded the Expo, the MBChB I class was divided into groups A and B. Group A was divided into seven subgroups, each of which visited an NGO that rendered services to the Bloemfontein community. Students visiting the organisations had to develop posters and brochures on the NGO's history, vision, mission, objectives, services rendered, target population, resources, financial structure, and special needs. Group B was divided into two subgroups, one of which held workshops with 34 community health workers (CHWs) from MUCPP and the other with 31 Grade 11 and 12 pupils from COMMTECH High School, a secondary school in Mangaung. During these workshops the students in Group B identified health needs and problems by means of discussion and questionnaires. Ten topics were identified and posters and brochures were developed to be exhibited and assessed at the MED 113 Expo.

Seventeen different posters and brochures were exhibited. An academic evaluation panel assessed the assignments, using specific criteria. Student groups did peer evaluations, and CHWs and pupils participated in formative assessment of the students (Beylefeld *et al* 2003: 10).

2. Aims of the study

The aim of this study was to determine whether CBE activities in the MED 113 Expo could help students to integrate theory (knowledge) and practice (skills); whether their attitudes and behaviour were influenced (moulding), and whether community exposure motivated students and stimulated their enthusiasm for CBE. Student opinion of the learning process, experience and assessment in the MED 113 Expo was ascertained. The effects of gender and language on their responses were investigated. It was also determined whether there were any benefits for the community and the service-providers. The final aim was to refine the CBE model in module MED113.

3. Method

This was a cross-sectional study with a population consisting of four different groups: all 134 first-year medical students in the Curriculum 2000 programme at the School of Medicine in 2001; 31 volunteer community health workers (CHW) from MUCPP; 31 Grade 11 and 12 pupils from the COMMTECH High School (all of whom took basic sciences and mathematics as subjects and had been selected for participation by their headmaster and Guidance Forum teacher), and six representatives of the organisations which the students visited.

Self-administered questionnaires were compiled after an extensive literature search. A Likert scale was used for closed questions: 4 = strongly agree, 3 = mildly agree, 2 = mildly disagree and 1 = strongly disagree. Clear definitions of these points on the scale were given to the respondents. The omission of the middle point was not an *ad hoc* decision, but was justified from the literature (Bowling 1997: 260) in order to avoid a neutral response (Wilken *et al* 1993: 248). Space was provided for open responses.

Questionnaires were distributed to CHW by a co-ordinator, to the students by the researcher and to the learners by their Guidance Forum teacher within a week of the Expo; some were only returned a month later. The questionnaires of the NGO representatives were completed by means of telephonic interviews by the researcher a month after the Expo.

The students represented two different language groups, namely Afrikaans and English (the media of instruction at the Faculty of Health Sciences are English and Afrikaans). The English class included some students for whom English was a first language and others who spoke an African language as their mother tongue. For this reason the students were divided into three groups, namely Afrikaans-, English- and African-language speaking groups.

Percentages for each response were determined for the various groups. Logistic regression was used to assess differences between language and gender groups. Since the number of English-speaking students was so small, their inclusion in the logistic regression caused the model-building procedure to fail and they were thus excluded from the analysis. As a first step, logistic regression containing language (Afrikaans or an African language) and gender, as well as the interaction between language

and gender was performed. Due to there being too few responses in the subgroups, this analysis could not be performed for 10 questions on the student questionnaire. Of the remaining questions, only one showed a significant interaction between gender and language group. Thereafter, logistic regression involving only the main effects, language and gender, was performed for each question. In this analysis a p-value of <0.05 was considered statistically significant.

The proposal was approved by the Ethics Committee of the UFS Faculty of Health Sciences. Written informed consent was obtained from students, learners and CHWs. Verbal telephonic consent was obtained from NGO representatives.

4. Results

4.1 Student questionnaires

There was a response rate of 124/134 (93%). Table 1 presents the responses of the students. For the variables that measured the achievement of the knowledge objective, the following results were found: a total of 90.3% of students were of the opinion that they had had to use different resources to do the assignment, and 89.5% agreed that the assignment had taught them to do health promotion. As far as the integration of theory and practice was concerned, 28.5% strongly agreed that they had made practical use of information obtained in theoretical sessions to obtain information to develop the posters and brochures. There was a 75.7% positive response with regard to the integration of theory and practice, and a 24.4% negative response.

Various skills variables were included in the questionnaire. 92.7% of students agreed that the assignment had taught them to function in a team. In terms of responses 3 and 4 taken together, 85.5% of the students were of the opinion that they had been forced to use their communication skills to do the assignment. A total of 77.4% of students reported that they had had to collaborate with personnel outside the university, and 72.6% of the students felt that they had had to use their problem-solving skills to complete the assignment. The inquiry into the use of negotiation skills yielded a 77.4% positive response. As far as the use of leadership skills was concerned, 77.5% agreed that they had had to use leadership skills during the assignment, and 65.3% of

Table 1: Student responses presented as percentages on a four-point Likert scale

Variables grouped according to objectives	N for items	Percentage			
		1*	2*	3*	4*
Knowledge					
The assignment forced me to use different resources	124	1.6	8.1	37.9	52.4
The assignment taught me to do health promotion	124	0.8	9.7	27.4	62.1
I used the information obtained in some of the theoretical sessions in practice to obtain information to develop the poster and brochures	123	8.9	15.5	47.2	28.5
Skills					
The assignment taught me to function in a team	124	0.8	6.5	26.6	66.1
The assignment forced me to use my communication skills	124	1.6	12.9	37.1	48.4
The assignment forced me to use my negotiation skills	124	1.6	21.0	48.4	29.0
The assignment forced me to use my leadership skills	124	0.0	22.6	43.6	33.9
The assignment forced me to use my problem-solving skills	124	1.6	25.8	41.9	30.7
The assignment taught me to collaborate with personnel outside the University	124	7.3	15.3	26.6	50.8
The assignment taught me how to budget	124	5.7	29.0	29.0	36.3

* 4 = strongly agree; 3 = mildly agree; 2 = no, mildly disagree; 1 = no, totally disagree.

respondents were of the opinion that the assignment had taught them to budget, although one female respondent remarked in the open responses that she had not handled the budget.

Some interesting results were obtained on the objective of addressing attitudes and behaviour (moulding). When asked if they had had to work across cultural borders, 74.2% of the students responded positively. A total of 96% realised that communities and organisations had

Table 1: Student responses presented as percentages on a four-point Likert scale (continued)

Variables grouped according to objectives	N for items	Percentage			
		1*	2*	3*	4*
Attitudes/ behaviour (moulding)					
The assignment encouraged me to work across cultural borders	124	4.0	21.8	35.5	38.7
The assignment helped me to realise that the community has needs other than disease which a doctor must address	124	0.8	3.2	21.0	75.0
The assignment exposed me to reality and taught me about people and circumstances that I did not know about	124	1.6	12.9	29.8	55.7
The assignment inspired me to change my attitude towards the community/organisation to which I was exposed	122	7.4	14.8	32.0	45.9
The assignment inspired me to change my perception about the community/ organization to which I was exposed	124	4.8	16.1	33.0	46.0
Student opinion on the experience					
The early exposure to the community stimulated my enthusiasm	124	3.2	3.2	32.3	61.3
The assignment stimulated my interest in the topic I had to prepare for my assignment	124	4.0	12.9	39.5	43.6
I would like to participate in an Expo at MUCPP	124	6.5	21.0	31.5	41.1
Student opinion on the learning process					
The Expo was a learning opportunity	124	0.8	4.8	28.2	66.1
The assessment of the assignment was fair	124	11.3	34.7	31.5	22.6
I would rather write a test on the topic "health promotion" than do an assignment	122	41.8	29.5	16.4	12.3

* 4 = strongly agree; 3 = mildly agree; 2 = no, mildly disagree; 1 = no, totally disagree.

needs other than disease that had to be addressed by doctors. Exposure to circumstances and people they did not know was reflected in the 85.5% positive response. A change in attitude towards the community was reported by 77.9% of students, and 79% reported that they had changed their perception about the community and organisation to which they had been exposed.

The following remarks in the open responses regarding exposure to different cultures need to be reported. Four Afrikaans students visiting an NGO felt that the community they had been exposed to was of the same culture as their own, and that they had not had the opportunity to work across cultural borders. Three students requested that a wider range of communities be used for the MED 113 assignment.

A total of 93.6% of students strongly agreed that the early exposure to the community had stimulated their enthusiasm for their studies. Interest in the topic of the assignment had been stimulated in 83.1% of cases. As far as willingness to participate in future Expos at MUCPP was concerned, 72.6% of students responded positively.

In the open responses four students specifically commented that the early exposure to the community had been a good experience, and ten students remarked that they needed more community exposure or that CBE should continue through all years of study.

Four students commented negatively on the organisation and timing of the Expo. One remarked that the organisation they had visited had not been interesting; another felt that he had already known everything about the topic he had had to prepare. Three students commented that they had absolutely not enjoyed the visit and had not been favourably received by the community/organisation they had visited. Two female English students described their visits as boring and a waste of time.

The students experienced the Expo as a learning opportunity in 94.3% of cases. A total of 54.1% respondents felt that the assessment had been fair. Only 28.7% of students preferred to write a test rather than to do the assignment.

In the open responses a lack of clear assessment criteria and the fact that not all students had participated in the same activities and there were two different topics for the assignment were perceived as unfair. Reporting on the learning process, 17 students remarked that doing

an assignment was a better way of learning than studying for a test. One student was negative about the fact that the assignment was a group assignment.

Of the males, 51% had Afrikaans, 14% English and 35% an African language as their first language. Of the females, 64.8% had Afrikaans, 12.7% English and 22.5% an African language as their first language.

In Table 2 the responses of the students are reported in specific language and gender categories. A positive response represents the sum of scale values 3 and 4. Table 3 illustrates the results with the p-values for significance of language and gender as predictors of a positive response in logistic regression. There was a significant difference in response between the gender groups as far as learning to collaborate with personnel outside the University was concerned ($p < 0.02$), with more males than females indicating that this had happened. The genders also differed significantly in terms of their responses regarding the use of problem-solving skills ($p < 0.02$) and whether the assignment had changed their perception about the community/organisation to which they were exposed ($p < 0.03$), with more males responding positively.

There was a significant difference between the language groups as far as enjoyment of the visit to the community was concerned ($p < 0.04$), with a smaller percentage of the Afrikaans group finding the visit to the community and organisation enjoyable than in the African-language group. The question therefore arises as to whether this difference reflects a negative attitude on the part of the Afrikaans group, or whether the fact that they were exposed to a totally unfamiliar situation is significant. The language groups also differed significantly on whether they would like to repeat the Expo at MUCPP, a venue in the community ($p < 0.01$). The fact that the Afrikaans group was less keen to repeat the activity in the township may reflect the difference in communities of origin, which could have had an influence on their responses. There was also a significant difference between the language groups regarding the question of writing a test as assessment rather than doing the assignment for the EXPO ($p < 0.02$). The African group was more positive about writing a test than the Afrikaans students, who were more positive about doing the assignment.

Table 2. Percentages of positive student responses (3+4)* by language and gender category

Variables grouped according to objectives	Male		Female	
		African		African
	n = 25	n = 17	n = 46	n = 16
Knowledge				
The assignment forced me to use different resources	80.0	100.0	89.1	100.0
The assignment taught me to do health promotion	92.0	94.1	82.6	100.0
I used the information obtained in some of the theoretical sessions in practice to obtain information to develop the poster and brochures	68.0	76.5	78.3	75.0
Skills				
The assignment taught me to function in a team	96.0	94.1	97.8	93.8
The assignment forced me to use my communication skills	80.0	94.1	80.4	87.5
The assignment forced me to use my negotiation skills	80.0	100.0	67.4	75.0
The assignment forced me to use my leadership skills	68.0	88.2	76.1	75.0
The assignment forced me to use my problem-solving skills	80.0	100.0	67.4	62.5
The assignment taught me to collaborate with personnel outside the university	80.0	100.0	60.9	75.0
The assignment taught me how to budget	72.0	82.4	60.9	62.5

* Scale: 4 = strongly agree; 3 = mildly agree; 2 = mildly disagree; 1 = totally disagree.

There were 4 missing responses in 18 of the 22 questions, 6 missing in 3 and 5 in 1. There were at most 4 missing per group.

Table 2. Percentages of positive student responses (3+4)* by language and gender category (continued)

Variables grouped according to objectives	Male		Female	
	Afrikaans	African	Afrikaans	African
	n = 25	n = 17	n = 46	n = 16
Attitude and behaviour				
The assignment encouraged me to work across cultural borders	64.0	88.2	73.9	50.0
The assignment helped me to realise that the community has needs other than disease which a doctor must address	92.0	100.0	90.4	100.0
The assignment exposed me to reality and taught me about people and circumstances that I did not know about	92.0	94.1	82.6	81.2
The assignment inspired me to change my attitude towards the community/organisation to which I was exposed	80.0	94.1	70.5	75.0
The assignment inspired me to change my perception about the community/organisation to which I was exposed	88.0	94.1	73.9	68.8

* Scale: 4 = strongly agree; 3 = mildly agree; 2 = mildly disagree; 1 = totally disagree.

There were 4 missing responses in 18 of the 22 questions, 6 missing in 3 and 5 in 1. There were at most 4 missing per group.

Table 2. Percentages of positive student responses (3+4)* by language and gender category (continued)

Variables grouped according to objectives	Male		Female	
	Afrikaans	African	Afrikaans	African
	n = 25	n = 17	n = 46	n = 16
Student opinion				
The early exposure to the community stimulated my enthusiasm	90.0	100.0	93.5	93.6
The assignment stimulated my interest in the topic I had to prepare for my assignment	72.0	88.2	84.8	87.5
The visit to the community/ organisation was enjoyable	88.0	100.0	70.5	93.8
The Expo was a learning opportunity	96.0	100.0	93.5	93.8
The assessment of the assignment was fair	52.0	58.8	56.5	56.2
I would rather write a test on the topic "health promotion" than do an assignment	24.0	40.0	21.7	50.0
I would like to participate in an Expo at MUCPP	72.0	94.1	56.5	87.5

* Scale: 4 = strongly agree; 3 = mildly agree; 2 = mildly disagree; 1 = totally disagree.

There were 4 missing responses in 18 of the 22 questions, 6 missing in 3 and 5 in 1. There were at most 4 missing per group.

Table 3. P-values for significance of language and gender as predictors of response in logistic regression

Variables grouped according to objectives	Language	Gender
	Afrikaans/ African	Male/ Female
Knowledge		
The assignment forced me to use different resources	0.96	0.30
The assignment taught me to do health promotion	0.14	0.49
I used the information obtained in some of the theoretical sessions in practice to obtain information to develop the poster and brochures	0.82	0.47
Skills		
The assignment taught me to function in a team	0.47	0.78
The assignment forced me to use my communication skills	0.20	0.79
The assignment forced me to use my negotiation skills	0.13	0.05
The assignment forced me to use my leadership skills	0.34	0.92
The assignment forced me to use my problem-solving skills.	0.46	0.02
The assignment taught me to collaborate with personnel outside the university	0.65	0.02
The assignment taught me how to budget	0.57	0.14

Table 3. P-values for significance of language and gender as predictors of response in logistic regression (continued)

Variables grouped according to objectives	Language	Gender
	Afrikaans/ African	Male/ Female
Attitudes and behaviour (moulding)		
The assignment encouraged me to work across cultural borders	0.86	0.50
The assignment helped me to realise that the community has needs other than disease which a doctor must address	-	-
The assignment exposed me to reality and taught me about people and circumstances that I did not know about	0.97	0.14
The assignment inspired me to change my attitude towards the community/organisation to which I was exposed	0.31	0.13
The assignment inspired me to change my perception about the community/organisation to which I was exposed	1.00	0.03
Student opinion		
The early exposure to the community stimulated my enthusiasm	0.66	0.40
The assignment stimulated my interest in the topic I had to prepare for my assignment	0.28	0.28
The visit to the community/organisation was enjoyable	0.04	0.07
The Expo was a learning opportunity	0.66	0.40
The assessment of the assignment was fair	0.78	0.83
I would rather write a test on the topic "health promotion" than do an assignment	0.02	0.85
I would like to participate in an Expo at MUCPP	0.01	0.15

* The omission of response (-) in the table was due to the fact that the model could not be fitted during analysis of the data.

4.2 Community questionnaires

The results of the two community samples, involving the pupils of COMMTECH High School and the CHWs of MUCPP, are presented below and summarised in Table 4.

The pupil sample comprised 31 participants with a response rate of 24/31 (77%). The pupils came from four ethnic groups: Southern Sotho 10 (42%), Tswana 6 (25%), Xhosa 7 (29%) and Zulu 1 (4%). There were 14 (61%) male and 9 (39%) female pupils (one respondent did not indicate their gender). Grouping scales 3 and 4 together, it was found that the pupils were extremely positive about the MED 113 activities (100%). Qualitative data were obtained from the open responses. Four pupils indicated that they had received information about AIDS for the first time. Three indicated that the workshop had encouraged them to consider furthering their studies. One responded that he had realised that he, too, could go to university just like some of the peers he had interacted with during the workshop. One pupil responded by saying that his self-esteem had improved after the workshop, and another said that the workshop had inspired him to be more responsible.

The CHW sample had a response rate of 30/31 (97%). Grouping scales 3 and 4 together, it was found that they, too, had a 100% positive response to all questions. All of the CHWs indicated that they would like the Expo to be repeated in the community. This may be because part of their function is to do health promotion. In the open responses, one CHW indicated that she would like to further her studies to become a nurse after the visit to the university. Two indicated that their skills in health promotion and education had improved as a result of the workshop and Expo. Three indicated that they were more motivated in their fieldwork after the Expo.

4.3 NGO questionnaires

Seven NGOs were visited but interviews were only conducted with six NGO representatives. The summary of the responses of the NGO representatives is given in Table 5. Their response to the student visits was positive. Grouping responses 3 and 4, the representatives responded 100% positively to all variables, except for the question as to whether the student visit was enjoyable and a teaching opportunity. As this was a

Table 4. Summary of pupils' (n = 31) and community health workers' (n = 31) responses

Variables	Pupils				Community health workers			
	1	2	3	4	1	2	3	4
The workshop served as a learning opportunity	0	0	0	100	0	0	6.7	93.3
The Expo was enjoyable and served as a learning opportunity	0	0	0	100	0	0	10	90
I will participate in a workshop with students again if asked	0	0	0	100	0	0	3.5	96.6
The exposure I had at the university was informative and may motivate me to further my studies at the University	0	0	17	83	0	0	17.9	82.1
The exposure I had at the university was informative and may motivate me to improve my school marks	0	0	8	92	-	-	-	-
I would appreciate it if the Expo were repeated at MUCPP	0	0	8	92	0	0	0	100

* 4 = strongly agree; 3 = mildly agree; 2 = mildly disagree; 1 = totally disagree.

double-barreled question, it is impossible to tell whether the respondent did not consider the visit a teaching opportunity, or did not enjoy it.

5. Discussion

5.1 Value for the students

Based on student responses, the MED 113 Expo achieved the knowledge objective of integrating theory and practice. This was determined by testing the grouped variables (learning to do health promotion, using different resources to do the assignment and using knowledge obtained in theoretical sessions in practice to develop posters and brochures for the Expo).

Students worked with authentic problems identified in the workshops with community members and activated prior knowledge while working on their assignments. Students also became actively involved by entering into debate with pupils and health workers. This active engagement with community members equipped students with a range of competences that can be applied throughout their professional careers (Engel 2000: 224).

The MED 113 study also addressed learning in the affective domain, with the following grouped variables testing the students' attitudinal objectives: working across cultural borders, realising that communities had needs other than those related to disease, exposure to reality and to people in circumstances unfamiliar to the students, as well as changes in attitude and in perception.

Students need to be encouraged to think carefully about complex moral issues in order to become experienced in moral reasoning (Bryant 1993: 224). This principle was implemented in the MED 113 assignment and workshops, where students were exposed to issues such as teenage pregnancy, the use of contraceptives by school-going children, HIV/AIDS and rape. Discussing and developing brochures and posters on these issues required moral reasoning.

Table 5. Summary of NGO representative responses (n = 6)

Variables	Percentage			
	1	2	3	4
The student visit served as an opportunity to advertise my organisation	0	0	33.3	66.7
The student visit was enjoyable and served as an opportunity to teach students	0	16.7	16.7	66.7
I will participate in student activities if asked again	0	0	50	50
The students used the visit as a learning opportunity	0	0	16.7	83.3
The students used their skills to obtain information	0	0	33.3	66.7
I would appreciate it if we were involved with the Expo again next year	0	0	16.7	83.3

* 4 = strongly agree; 3 = mildly agree; 2 = mildly disagree; 1 = totally disagree.

Two of the variables in the study were exposure to cultural diversity and exposure to communities living in circumstances unfamiliar to the students. The fact that four students wished they had been exposed to a greater diversity of cultures — because the community in which they worked shared their culture — identified a deficiency in the CBE activity. In the MED 113 Expo only the COMMTECH High School was visited. Only a third of the students were exposed to the NGOs. The responses persuaded the lecturers to include another school representing a different culture, and also to expose all students to NGOs when the MED 113 module was repeated the following year.

It cannot, however, be concluded that the MED 113 Expo was instrumental in attitudinal change, because the research instrument did not actually test attitudes and no pre-Expo and post-Expo attitude tests were performed. Students reported a change in attitude but the instrument was not an attitude test.

Recommendations with regard to cross-cultural exposure are that students should be exposed to a wider variety of communities with cultures different from their own, and that workshops which prompt students to think and talk about complex moral issues like teenage pregnancy, promiscuity, violence against women and HIV/AIDS should remain part of the core activities of the module.

The variables grouped to measure the achievement of the skills objectives were teamwork; the use of communication skills, negotiation skills, leadership skills and problem-solving skills; the need to collaborate with personnel outside the university, and the use of budgeting skills. MBChB I students in the MED 113 research group reported positively on the utilisation of skills. Although all the skills identified were addressed in MED 113, students were not actually evaluated on their implementation. It could be argued that they had to be used in order to obtain a mark for the posters and brochures. Some proof exists that students actually did use them, as the NGO representatives reported in 100% of cases that students had utilised their skills to gather information.

The skills shown to have been utilised in this study were the following: written communication skills (brochures and posters presented at the Expo), negotiation, verbal communication and problem-solving (conducting workshops and identifying community needs for poster production). Observation of skills should also be done in context while

students interact with the community. Future assessment should include a component in which lecturers observe the process and assign marks for practicals. This is not planned for the near future, however, due to a lack of human resources.

The variables grouped to evaluate student opinion were aimed at three aspects, namely the experience (Did the exposure stimulate enthusiasm? Was the visit enjoyable? Would you like to repeat the Expo at MUCPP?), the learning process (Did the assignment stimulate your interest? Was the Expo a learning opportunity?) and the assessment (Was the assessment fair? Would you rather write a test?). The results of the study emphasise the importance of monitoring the process and noting potential problems to keep students motivated and to acknowledge the relevance of this teaching method.

Students responded favourably to the MED 113 Expo. The open responses yielded warning signs in that three students commented that they had not enjoyed it at all, and had not been received favourably by the community/organisation they visited. Two female English students described the visits as boring and a waste of time. The students who were not received favourably had visited an NGO. A communication breakdown relating to the logistics of this visit had been the cause; such problems must be addressed in future years.

Recommendations with regard to the students' opinion of the visits are important. These relate mainly to the open responses. The logistics and organisation of visits and of the Expo are important and require special attention. Learning objectives need to be carefully planned in collaboration with the other partners in CBE and clearly communicated to all parties concerned. Communication with community co-ordinators and confirmation of the logistics, the learning objectives of students, and other issues of importance are crucial. Students must also be briefed about the objectives and outcomes of CBE in order to understand the need for it. Differences in the cultures and backgrounds of the students must be respected and review sessions to discuss student concerns and to defuse conflict and stress are essential.

Students' attitudes to and opinions of CBE activities are very important, as noted in other studies such as that of Magzoub & Hamad (2000: 241), who reported on the struggle for relevance in Medical Education at the University of Gezira.

It is recommended that future research should develop a means of assessing actual students' attitudes and behaviour. Pre- and post-tests, as well as a controlled study should be used to determine whether CBE changes attitudes and behaviour.

One very important aspect was the opinions of students concerning the assessment process, with 46% viewing the assessment as unfair, even though only 28,7% would have preferred to write a test rather than do an assignment. In the open responses, the lack of clear assessment criteria and the fact that students participated in different activities and thus had different topics for the assignment were identified as unfair. The discontent thus related more to the process of assessment than to the method. In a study by Beylefeld *et al* (2003) on the assessment in this MED 113 module, the variation in topics and the late negotiation of the assessment criteria with students were identified as reasons for perceiving the assessment as unfair.

In a classroom situation the learning stimuli are constant for all students. The variability in CBE placements leads to less certainty and less homogeneity in learning outcomes. This aspect was one of the concerns raised by students in the MED 113 study. Students remarked that they had been exposed to different communities and had different topics to address, which meant that the assessment was not fair. This concern links with Howard's (1993: 220) comment that CBE activities differ and that assessment criteria have to be carefully determined and communicated to, and negotiated with, students in order to be fair. This is particularly true if the assessment will be on different topics after different types of exposure.

In response to the research results, the assessment panel thereafter involved students in the development of assessment guidelines and criteria for the following year. Students also participated in negotiating the weighting of the various components of the assignment. It is proposed that specific guidelines and contracts be negotiated for those involved in group assignments.

5.2 Benefits for the community

The workshops held with the pupils and the CHWs gave the community the opportunity to voice its needs. Community members were also exposed to students from disadvantaged communities, who had overcome

similar obstacles in order to be admitted to university. The Expo also provided health education and promotion for community members.

Participation and ownership contribute to positive involvement. In a study done at Gezira University (Magzoub & Hamad 2000: 241), community involvement and commitment posed problems. In an effort to avoid this in the MED 113 Expo, both pupils and CHWs participated actively in workshops to identify health needs for the students to address in their assignments. The headmaster and Guidance Forum teacher of the COMMTECH High School helped to identify suitable pupils to participate in the research, and also attended the Expo with their pupils. Pupils and CHWs assessed the posters and brochures. The mark they allocated contributed to the formative assessment. Beylefeld *et al* (2003) note the positive attitude of pupils and CHWs towards the Expo in their study on the shared responsibility for assessment of the poster presentations.

5.3 Benefits for the NGOs

A study addressing community agency satisfaction was carried out at the University of Connecticut's School of Medicine by Magzoub *et al* (2000), in which students were exposed to community agencies including public schools, rehabilitation services, home-based care programmes, substance abuse treatment agencies and other projects. Activities such as these demonstrate to communities that there are, and will in future be, physicians who are responsive to their needs and who care about their problems (Magzoub *et al* 2000: 384).

In the open responses two of the NGO representatives requested that students be placed for longer periods. One indicated that it would be of more use if the students were placed at a later stage when they could also participate in service rendering. As a result of these requests students are now also placed at these specific NGOs during the third year of study and for at least six mornings. They do not, however, render services at that stage. This placement is also a response to requests by students to be placed in CBE settings during later years of study.

To enhance the benefits for the NGOs, it is recommended that more senior students be placed there for longer periods and that they participate in service rendering.

6. Limitations of the study

This was a quantitative study with the opportunity for open responses to the questionnaires, allowing for personal opinion. This was not, however, sufficient to label the research as a combination of quantitative and qualitative methods. This is one of the limitations of the study, because research in the affective domain requires a more qualitative approach in order to verify responses. Valuable information was obtained from the open responses, but unfortunately no discussion of them was possible.

Another weakness in the study was that no pre-test was done. It thus could not be determined whether the exposure had influenced students' attitude towards the community, as the study had not specifically evaluated attitudes and behaviour, but only tested students' opinion on whether their attitudes and behaviour had been influenced.

The fact that the students will not be followed up until their internship to determine whether the early CBE exposure had any influence on their final attitudes and behaviour could also be regarded as a limitation.

A national CHESP research project on service learning is currently in progress. The researcher is involved in this study, and the MED 113 CBE module forms part of it. The CHESP project is funded by the Joint Education Trust (JET) and the FORD Foundation, and funds are available for research in service learning activities at tertiary institutions. The CHESP project uses both quantitative and qualitative approaches and aims to promote service learning at tertiary institutions (see 2.2.1). It addresses the deficiencies in the MED 113 CBE Expo study by administering pre- and post-tests.

7. Conclusion

As an educational approach, CBE is perceived by some critics as a "soft science" and not "scientifically based". The positive results of this research should change their mind. The study proved that a well-structured community-based education model benefits the community while providing learning opportunities for students in the cognitive, affective and psychomotor domains.

The CBE model addressed the students' educational needs and expectations, while its early clinical exposure motivated students and made them enthusiastic towards Curriculum 2000 and community involvement. The MED 113 Expo had a positive impact on students' attitudes and behaviour towards communities. Community members perceived the Expo as a learning experience and wished to participate again.

The MED 113 CBE case study is an example of a CBE model that can serve as a reference for the development and implementation of CBE in other phases and modules in Curriculum 2000. The positive results of the study and the success of the Expo served the purpose of providing evidence that CBE is an educational approach that can be utilised successfully, not only to influence attitudes and behaviour, but also to enble students to acquire knowledge, integrate theory and practice, and learn in context.

Bibliography

BEYLEFELD A A, G JOUBERT, M P JAMA & B DE KLERK
2003. Lecturers, students and community members sharing the responsibility of assessing project-based poster presentations. *South African Journal of Higher Education* 17(2): 1-12.

BOWLING A
1997. *Research method in health: investigating health and health services*. Philadelphia: Open University Press.

BRYANT J H
1993. Educating tomorrow's doctor. *World Health Forum* 14: 217-30.

CURTONI S E
1999. Mission of a medical school: a European perspective. *Academic Medicine* 74(8): S31-7.

ENGEL C
2000. Assessment of students' progress and achievement. Schmidt *et al* (eds) 2000: 221-40.

GENERAL MEDICAL COUNCIL (EDUCATION COMMITTEE)
1993. *Tomorrow's doctors: recommendations on undergraduate medical education*. London: General Medical Council.

HAMAD B
2000. What is community-based education? Evolution, definition and rationale. Schmidt *et al* (eds) 2000a: 11-26.

HOWARD J
1993. C*ommunity service learning in the curriculum. A faculty casebook on community service learning*. Michigan: OCSL Press.

MAGZOUB M & B HAMAD
2000. The struggle for relevance in medical education: experience at the University of Gezira. Schmidt *et al* (eds) 2000a: 241-50.

MAGZOUB M, M ILYAS, J LEWIS & H SCHMIDT
2000. Impact of community-based educational programs (1): effects on the community. Schmidt *et al* (eds) 2000a: 375-88.

MEDICAL AND DENTAL PROFESSIONAL BOARD
1999. *Education and training of doctors in South Africa. Undergraduate medical education and training: guidelines by the Medical and Dental Professional Board*. Pretoria: Medical and Dental Professional Board.

SCHMIDT H, M MAGZOUB, G FELETTI, Z NOOMAN & P FLUGGEN (eds)
2000a. *Handbook of community-based education: theory and practices*. Maastricht: Network Publications.

2000b. Preface. Schmidt *et al* (eds) 2000a: 6-9.

SCHOOL OF MEDICINE
2000. *University of the Free State. Phase I Guide Curriculum 2000*. Bloemfontein: UFS.

VAN RENSBURG D & N VAN RENSBURG
1999. *Distribution of human resources. South African health review*. Durban: Health Systems Trust.

WILKEN D, L HALLAM & M DOGGETT
1993. *Measures of need and outcome for primary health care*. Oxford: Oxford University Press.

WORLD FEDERATION FOR MEDICAL EDUCATION & WHO
1995. The Cape Town Declaration. Proceedings. *South African Medical Journal and Medical Education* 29: 385-6.

WORLD FEDERATION FOR MEDICAL EDUCATION
1993. Proceedings of the world summit on medical education: the changing medical profession: recommendations. *Medical Education* 28(1): 140-9.

WORLD HEALTH ORGANISATION
1994. *Final report: regional consultation on medical education: training the doctor for the 21st century*. Yaounde, Cameroon: World Health Organisation.