Community-based Education (CBE) – the MED 113 Expo as case study

By

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Declaration:

I declare that the dissertation hereby submitted is my own independent work and has not previously been submitted by me at another University/Faculty. I further more cede copyright of this dissertation in favor of the University of the Free State.

EAM Prinsloo

SUMMARY

Background: Societal complaints that health professionals do not address their needs, the ratio of specialist to primary health care professionals and that human resources in health services are concentrated in the private sector, urged new methods of teaching and learning to be explored. Community-based Education (CBE) is one of the educational approaches that could address these concerns. **Aim:** The aim of this study was to determine if community-based activities could help students to integrate theory and practice, and influence attitude and behaviour towards the community. In addition it aimed to determine if community exposure motivated students and stimulated their enthusiasm towards CBE. These aims were achieved by determining student opinion on the learning process, experience and assessment as well as determining whether the community and services benefited in any way. The final aim was to refine the community-based education model in module MED113 to serve as future reference for development of CBE approach in other modules. **Method:** It was a quantitative study including a literature study and the completion of questionnaires by first year medical students, learners, community health care workers and representatives of institutions participating in CBE activities. **Results:** The results yielded a 75.7% positive response with regards the integration of theory and practice and a 77.9% positive response regarding change in attitudes towards the community. 93.6% of respondents' enthusiasm towards CBE activities improved. 94.3% and 54.1% of respondents were positive regarding the experience and method of assessment respectively. There was a 100% positive response by learners, community health workers and representatives of institutions with regards the learning experience and value for the institutions respectively.

Conclusion: Recommendations regarding changes to the CBE activities of MED 113 were made to use it as model in other CBE modules.

Key words: Curriculum reform, community-based education, students' knowledge, skills, attitudes, behavior, community and service benefit.

OPSOMMING

Agtergrond: Klagtes deur die samelewing dat die mediese beroep nie hul behoeftes aanspreek nie, die verhouding van spesialiste tot primêre sorg geneeshere en die feit dat menslike hulpbronne in die privaatsektor gekonsentreer is, het aanleiding gegee tot die ondersoek na nuwe onderrig en leer metodes. Gemeenskapsgebaseerde-onderwys (GBO) is een van die die onderrigmetodes wat hierdie besware kan aanspreek. **Doel:** Die doel van hierdie studie was om te bepaal of gemeenskapsgebaseerde aktiwiteite studente kon help om teorie en praktyk te integreer en om te bepaal of dit hul houding en gedrag teenoor die gemeenskap beinvloed het. Voorts is gepoog om te bepaal of gemeenskapsblootstelling studente motiveer en entoesiasme jeens GBO aanwakker. Hierdie doelwitte is bereik deur studente opinie aangaande die leer proses, ondervinding en assessering, en voordele vir die gemeenskap en dienste te bepaal. Die finale doel was om die GBO model in module MED 113 te verfyn om as verwysing te dien vir die ontwikkeling van ander GBO aktiwiteite. **Metode:** Dit was 'n kwantitatiewe studie wat 'n literatuurstudie en voltooiing van vraelyste deur eerstejaar mediese studente, leerders, gemeenskapsgesondheidsorgwerkers en verteenwoordigers van instansies wat aan GBO aktiwiteite deelgeneem het, ingesluit het. **Resultate:** Daar was 'n 75.7% positiewe respons t.o.v. die integrasie van teorie en praktyk en 77.9% respondente het 'n verandering in houding teenoor die gemeenskap rapporteer. 93.6% van respondente se entoesiasme vir GBO is aangewakker. 94.3% en 54.1% van respondente was positief ten opsigte van die ondervinding en die metode van assessering onderskeidelik. Daar was 'n 100% positiewe respons van leerders, gemeenskapsgesondheidsorgwerkers en verteenwoordigers van instansies t.o.v. die leergeleentheid vir skoliere en werkers en waarde vir die instansies onderskeidelik.

Samevatting: Aanbevelings ter verbetering van die GBO aktiwiteite in MED 113 is gemaak om dit as model vir ander modules te kan gebruik.

Sleutelwoorde: Kurrikulum hervorming, gemeenskapsgebaseerde-onderrig, studente kennis, vaardighede, gedrag , aanwins vir gemeenskap en dienste.

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LIST OF ABBREVIATIONS

APD	Association for people living with disabilities
CBE	Community-based education
CHESP	Community Higher Education Service learning Partnerships
CHW	Community health worker
COE	Community-orientated education
DHS	District Health System
HPCSA	Health Professions Council of South Africa
MUCPP	Mangaung University Community Partnership Project
NGO	Non-Governmental Organization
PBL	Problem-based learning
PHC	Primary Health Care
SAQA	South African Qualifications Authority
SDL	Self-directed learning
WFME	World Federation for Medical Education
WHO	World Health Organisation

CHAPTER I

BACKGROUND AND ORIENTATION

1.1 INTRODUCTION

There have been major changes in the health and education systems both within the Republic of South Africa and on the global scene. International committees, workshops and declarations of organisations like the World Health Organisation (WHO) and the World Federation for Medical Education (WFME), reported on the importance of addressing community and national needs when developing curricula (WHO 1994:5;28 and WFME 1993:28 1;140). Other aspects of importance are local needs, resources and facilities, as stated in the Cape Town Declaration of 1995 (WFME & WHO 1995). The Yaounde Declaration of 1994 stressed the importance of addressing issues like ethics, community needs, leadership and a team approach in medical education (WHO 1994).

During the re-curriculating process and the development of Curriculum 2000 (the revised programme for undergraduate students in the School of Medicine of the University of the Free State), the medical school used the guidelines and requirements set by the South African Qualifications Authority (SAQA) and the Health Professions Council of South Africa (HPCSA).

Curriculum 2000 is an integrated modular program for medical students at the University of the Free State. It is a five-year course, comprising three phases. Phase one has a one year duration. Phase two (II) and phase three (III) each consists of two years. The community-based education component of the program is integrated into the 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 necessary knowledge, skills, professional thinking, behaviour and attitudes to pursue their profession as*

doctors and health care managers in all the ramifications of medicine and health care (School of Medicine 2000:3).

Community-based education is one of the educational approaches referred to in the SPICES Model of Harden and Dunn (Hamad 2000:22) that can be utilised as educational tool in a new innovative curriculum. Harden and Dunn view six educational strategies as a continuum where each medical school finds its own position along the spectrum, which includes student-centred versus teacher-centred, problem-based versus information-gathering, integrated versus discipline-based, community-based versus hospital-based, electives versus standard programs and systematic versus opportunistic or apprenticeship-based curricla (Hamad 2000:22).

During curriculum development and during the planning of the community-based education activities in Curriculum 2000 specific objectives were set. These objectives 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 United Kingdom's General Medical Council that:

> *...attitudes of mind and of behaviour that befit a doctor should be incalculated, 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).

Favourable behaviour must be nurtured and promoted. The aim is to achieve specific attitudinal objectives in Curriculum 2000 through community-based education. This study evaluates the effectiveness of Community-based Education (CBE) to achieve the objectives. The document "Education and training of doctors in South Africa" compiled for the Medical and Dental Professions Board in March 1999 lists some attitudinal objectives and recommendations relating to attitudes and behaviour to be nurtured in medical students.

Some of the objectives relevant to this approach to medical education are summarised as follows:

- Respect for colleagues and patients irrespective of race, culture, background, gender, way of life
- An awareness of the importance of a community-based approach and service rendering
- A willingness to participate in self and peer evaluation
- The ability to work as a multi-disciplinary team (Medical and Dental Professions Board 1999:8).

As far as recommendations relating to attitudes and behaviour are concerned, the mentioned document states that the specific attitudes that should be emphasised, should include the desire to serve humanity; the respect of all human rights; a recognition of ethical values; a community orientation; a willingness to adapt to local circumstances and changing situations. Further, it is stated that these correct desired attitudes and behaviour should be established during the study years in order to equip graduates to carry out their responsibilities towards patients, colleagues, and the public at large. The objective should also be that students should become role models in the community during their studies and also when they enter the profession. According to the document, in showing commitment to their studies they would also demonstrate that they would be committed doctors (Medical and Dental Professions Board 1999:11). An important aspect of undergraduate studies is the improvement of behavioural ability, which includes improvement of communication skills. Communication does not only mean transmitting knowledge, but actually building a relationship based on mutual understanding and participation (Curtoni 1999:S34).

With these objectives and recommendations in mind, the community-based education (CBE) modules in Curriculum 2000 were developed. It should be borne in mind that at the stage that this research was undertaken, the Faculty of Health Sciences had not yet formulated and documented policy as to its perception of the definition of community-

based education, the duration of time to be spent on community-based education, and the human and physical resources to be made available for community-based education. The researcher was confronted with these questions. The challenge was to facilitate the process of developing a model for community-based education and formulating of policy on community-based education within the School of Medicine and particularly Curriculum 2000. One should realise that the selection of sites, the learning objectives identified for CBE and the orientation of academics, service providers and community as to the outcome and objectives were essential to make the CBE experience relevant. The communities selected to participate in the CBE activities vary. The Mangaung community consists of a predominantly black community of the previously disadvantaged population in South Africa. This 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. The participating non-governmental organizations (NGOs) also serve specific populations and students are exposed to populations with special needs. These are populations often marginalized and students need to understand the need for equity and accessibility of services for all groups of society.

1.2 PROBLEM STATEMENT

Societal complaints about health professionals that do not address their needs, the ratio of specialist to primary health care professionals which is a cause for concern, and the fact that human resources in health services are concentrated in the private sector urged new methods of teaching and learning to be explored. CBE is one of the educational methods of teaching that could address these mentioned concerns. Changes to the curricula are designed to attract professionals to and retain them in the public service (van Rensburg & van Rensburg 1999:218).

> *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 less important than the formal lectures and academic hospital rotation within the curriculum.

Therefore, the problem that gives rise to the research project was that no model existed according to which CBE activities in the School of Medicine could be developed, and it was not clear whether current activities addressed the goals and objectives of CBE effectively and efficiently.

Against this background the following problem questions were formulated:

- Can early community exposure through community-based education be utilized to integrate theory (knowledge) and practice (skills), and influence the attitude and behaviour (moulding) of medical students in Curriculum 2000?
- Can educational objectives be achieved by means of CBE?
- Are the methods of assessment used in *Concepts of Health and Disease* MED 113 Expo fair?
- Does early community exposure motivate students and stimulate their enthusiasm towards community based education in the MED 113 Expo, and do learners see the educational relevance of the activity?
- Did the communities that participated in the educational activities in the module, report any benefit from the CBE activity?

With these questions in mind, the research focused on the following aim and objectives.

1.3 AIM AND SPECIFIC OBJECTIVES OF THE STUDY

1.3.1 Aim

The aim of the study was to determine if the CBE activities in the MED 113 Expo, with early exposure to community needs that differed from their own, had an impact on knowledge, skills, attitude and behaviour (moulding) of students.

A shift from a predominantly curative biomedical model with graduates who are specialist-orientated, to a hybrid model including CBE that also addresses the psycho-social needs of the community with a possible resultant change in attitudes and behaviour, and a swing towards primary health care and the major need for medical practitioners in South Africa for primary health care physicians (Medical and Dental Professions Board, 1999) was the ultimate goal.

1.3.2 Objectives

The objectives of the study were the following:

- To determine if early community exposure as part of the CBE activity in the MED 113 Expo could help the students to integrate theory (knowledge) and practice (skills), and if there was any influence on their attitude and behaviour (moulding);
- to determine if early community exposure motivated students and stimulated their enthusiasm towards community-based education and the MED 113 Expo;
- to determine student opinion on the learning process and assessment in the MED 113 Expo;
- to determine if the CBE activities in Module 113 had any benefit for the community and services;
- to refine the community-based education model in the Phase I module, MED113, to serve as future reference for the development of CBE activities in other modules and phases of Curriculum 2000.

1.4 DEMARCATION OF THE STUDY

The research was undertaken in the field of Health Professions Education. The specific topic addressed was CBE as educational approach.

The study was undertaken in module MED 113 of Phase I of Curriculum 2000 in the School of Medicine at the University of the Free State. Because Curriculum 2000 has an integrated approach the research was done in *Concepts of Health and Disease,* MED 113, but the course material and knowledge attained could not be absolutely separated from that in *The Doctor and his Environment,* MEC 113. MED 113 was selected because activities in the CBE component of this module adhered to the definition of community-based education (WHO 1987). The community involved in the research was the community health care workers of the Mangaung University Community Partnership Project (MUCPP), learners from Commtech High School, a local secondary school in Mangaung and the non-governmental organizations visited by students participating in the study. The impact of CBE on students' attitudes and behaviour were issues addressed in the project. First-year medical students in Curriculum 2000 participated in the study.

1.5 VALUE AND SIGNIFICANCE OF THE STUDY

The study hoped to contribute to better health for communities by finding an effective and efficient way to expose and sensitize students to the community where they will work once qualified. Magzoub and Schmidt (2000a) reviewed a number of studies that indicated that schools with a community-oriented curriculum were generally successful in reaching their goals. Their graduates choose a career in primary health care to a larger extent and generally have more humanistic values.

The importance of CBE both globally and nationally were highlighted by the WHO (1994:9;7) and WFME (1993:147) referring to the need to address community and national needs during curriculum reform. According to the *Strategic Framework of the Department of Health 1994 – 2004* (Department of Health 1999), the human resource plan should be used to determine the transformation of medical schools. This would include the ratio of training of primary health care professionals and specialists. Curriculum reform should also aim to address the maldistribution of health care providers

between public and private sector. Training in Curriculum 2000 includes the primary health care approach. In the *Cape Town Declaration* (WFME & WHO 1995) specific attitudes to promote ethical awareness; respect for human rights; a community-based orientation; progressiveness and a willingness to adapt to local conditions and changing circumstances were propagated. This research project assessed, in general, if attitudes were addressed or changed in the MED 113 CBE module.

The study hoped to contribute information that could be used by lecturers that need to develop community-based education activities and modules. The community involved with the Mangaung University Community Partnership Project (MUCPP), the Commtech Secondary School in Mangaung and the non-governmental organizations visited by students will benefit from the study. Seeing that formal policy has not been formulated and there was no specific model for CBE in the School of Medicine, the value would be that the MED 113 CBE model could be tested and used as an example for possible CBE activities and objectives in other phases and modules in Curriculum 2000. Elizabeth Murray (1999:800) stated that CBE had arrived relatively recently on the undergraduate teaching scene. This means that it still has to argue for its existence, fight for resources and be seen to deliver in order to survive. CBE teachers thus had the incentive to address these fundamental questions of defining and assessing desirable outcomes of medical education, evidence-based education and professionalization of teaching. The MED 113 research project was part of evidence collection to inform and support teachers that have to develop modules in CBE. The fact that community members and service providers were involved in the workshops, the health Expo and assessment of students, could support the assumption that their needs were identified and addressed through active participation. This assumption was also tested in the questionnaires distributed amongst them as part of the research. A model developed in this way may assure positive participation by community members and service providers in community-based education.

1.6 OVERVIEW OF MED 113 CBE MODULE

A brief discussion regarding the implementation process of the MED 113 CBE module and the sample selection will be given to clarify the research method.

The student sample consisted of all 134 first-year medical students in the Curriculum 2000 program in 2001. They were briefed during theoretical sessions on community entry, health promotion, forces that constitute communities, 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 M.B.Ch.B I class was divided into two main groups namely group A and B. Group A was divided into seven subgroups, which each visited a non-governmental, non-profitable organization, rendering services to the community of Bloemfontein. These NGOs were selected by approaching NGOs active in the Bloemfontein community and identifying those willing to be involved with CBE of first-year students in Curriculum 2000. Students visiting the organizations had to develop posters and brochures regarding the history, vision, mission, objectives, services rendered, target population, resources, financial structure and special needs of the organisations. One group had practical problems during their visit and could not achieve their objectives. Subsequently they developed a poster and brochures on the topic "glue sniffing". Appendix 1 refers to the NGOs visited. Group B was divided into two subgroups. The subgroups respectively held workshops with 34 community health workers from the Mangaung University Community Partnership Project (MUCPP) and 31 grade eleven and twelve learners from Commtech High School, a local secondary school in the black township of Mangaung. The learners all took basic sciences and mathematics as subjects. The students in Group B had to identify health needs and problems during the workshops by means of discussion and questionnaires. From these needs and problems the ten topics listed in Appendix I were identified on which the subgroups of students had to develop posters and brochures that were exhibited and assessed at the MED 113 Expo at the University of the Free State.

A total of seventeen different posters and brochures were exhibited at the MED 113 Expo. An academic evaluation panel assessed the assignments, using specific criteria. Student groups did peer evaluation. A mark obtained in the assessments done by community health workers and learners were used in formative assessment. Prizes were presented to the three winning exhibits. The prizes were presented on the decision of the academic panel, but the assignment marks (which contributed to the MED 113 module mark) were calculated by adding the academic panel's and the peer assessment marks. There was no prior discussion or agreement with the students and academic panel with regard to the contribution of these marks to the final module mark.

1.7 DESIGN AND METHODOLOGY

1.7.1 Study design

It was a quantitative exploratory study with the aim to provide curriculum planners with information to design future CBE modules. The design is that of a case study,

> ....*in which a phenomenon* (CBE), *bounded by time and activity* (a first year module), *was explored by collecting information from different role-players* (cf Leedy 1997:157)

1.7.2 Research method

The research method comprised a literature review (cf Leedy 1997) to collect information on CBE and to form a basis for compiling the instruments. The instruments (questionnaires) were used in the empirical study to collect data from the participants.

1.7.2.1 Study population

The study population consisted of first year medical students in the School of Medicine, the Mangaung community and Bloemfontein NGOs.

1.7.2.2 Sample

The student sample consisted of all 134 first-year medical students in the Curriculum 2000 program during 2001. Thirty one community health workers (CHW) from the Mangaung community working at MUCPP constituted one of the community samples. The other community sample consisted of 31 grade eleven and twelve learners from the Commtech High School. The last sample of six consisted of the community and NGO representatives of organizations visited by the students.

1.7.2.3 Research instrument

The research instrument used was questionnaires that included questions based on an extensive literature review on community-based education and the needs for change in medical curricula. Questionnaires were developed to identify whether the different components of community-based education, namely the students' educational needs, the participation of the community and the services provided were addressed. Questionnaires are attached as appendices 2 (student questionnaire), 3 (learner questionnaire and community health worker questionnaire) and 4 (NGO questionnaire).

1.7.2.4 Data collection

The contact persons in the community and school distributed the questionnaires to the sample groups. Questionnaires to representatives of organisations were completed through telephonic conversation with the researcher. Questionnaires completed by students were distributed and collected by the researcher. The researcher coded the information from the questionnaires and the Department of Biostatistics of the Faculty of Health Sciences did the statistical analysis.

1.8 ETHICAL CONSIDERATIONS

Written informed consent was obtained from the students, learners, community and CHWs. Verbal telephonic consent was obtained from the NGOs. Anonymity was not maintained, due to the fact that the consent forms were attached to the questionnaires. Confidentiality was maintained as only the researcher had access to the individual questionnaires and does not teach in MED 113. The Ethics Committee of the Faculty of Health Sciences of the University of the Free State approved the study.

1.9 CONCEPT CLARIFICATION

When discussing educational change and the utilization of innovative methods one has to agree with the statement of Prof. E Ezzat, Dean of the Faculty of Medicine, Suez Canal University, Ismailia, Egypt:

> *(S)till I believe there exists a real problem in the definition of the new innovative educational jargon community-orientated education (COE), community-based education (CBE), problem-based learning (PBL), etc. There is a real need to clarify the meaning of those terms so they could have the same meaning worldwide. Hence, we have to start by 'what is it all about' rather than 'how to do it'* (Boelen 1990: 131).

"Service learning" is also a concept like CBE presently researched in South Africa at different universities of which the University of the Free State is one. This concept is widely documented in the United States of America and will also be referred to in this document. The following list of concept clarifications was compiled to be used as reference when reading the study.

1.9.1 Problem-based learning (PBL)

Problem-based learning (PBL) is a teaching method which puts students face-to-face with a problem where they then have to analyse it, ask questions, take stock of what they already know, and seek out what they need to know. Reference books are consulted to find answers to specific questions. Students work in small groups and the role of the teacher is to guide the learning, analysis, and problem-solving and not to convey knowledge (Dumais, Bernier & Des Marchais 2001:49).

1.9.2 Attitudes/behaviour (moulding)

In this study attitudes refer to the orientation of individuals towards other people, especially those from a different background, whether cultural, linguistic, socio-economic or any other difference. Desired attitudes for medical doctors are referred to keeping in mind that an attitude is a relatively durable, psychological predisposition of people to respond towards or against an object, person, place, idea or symbol. It consists of three components: their knowledge or beliefs, their feelings or evaluations, and their tendency toward action or passivity (Alreck & Settle 1995:442).

1.9.3 Community

Two different definitions of community are accepted. A community can be defined as the social setting where individuals are born, grow up and live and experience health or disease and are cared for, rehabilitated and eventually reach the end of life. Another definition/view of community could be that it represents the members of an administratively, socially or geographically defined population (Engel 2000: 222).

1.9.4 Community-based education (CBE)

CBE consists of learning activities that utilize the community extensively as a learning

environment in which both students, teachers, members of the community and representatives of other sectors are actively engaged throughout the educational experience (WHO 1987).

1.9.5 Community-oriented education

The difference between community-based education and community orientation is not very clear. Community-orientated education is an approach to medical education that takes into consideration in all aspects of its operations the priority health problems of the country in which it is taught (Hamad 2000).

1.9.6 MED 113 Expo

The MED 113 Expo refers to an expo which is held at the University of the Free State Medical School after the student visits to NGOs and workshops held with the CHWs and Commtech learners. The students have the opportunity to exhibit the posters and brochures they had to prepare after the afore-mentioned workshops and visits. The Expo is attended by the students, learners, CHWs, NGO representatives, lecturers and any interested members of faculty. Assessment of the MED 113 CBE group assignments is done during the Expo by a panel of expert lecturers, peers and community members involved in the workshops.

1.9.7 Medical humanism

It refers to every physician's inner tendency to see the patient as a human being and put the patient at the centre of his or her professional concerns (Cote & Des Marchais 2001:179).

1.9.8 Service learning

Service learning is

> *...a course-based, credit-bearing educational experience in which students (a) participate in an organised service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility* (Bingle & Hatcher 2001:26).

Service learning involves two vectors namely student learning and service in the community (Foos & Hatcher 1999: 11).

1.10 LIST OF ABBREVIATIONS

APD	Association for people living with disabilities
CBE	Community-based education
CHESP	Community Higher Education Service learning Partnerships
CHW	Community health worker
COE	Community-orientated education
DHS	District Health System
HPCSA	Health Professions Council of South Africa
MUCPP	Mangaung University Community Partnership Project
NGO	Non-Governmental Organization
PBL	Problem-based learning
PHC	Primary Health Care
SAQA	South African Qualifications Authority
SDL	Self-directed learning
WFME	World Federation for Medical Education

WHO World Health Organisation

1.11 RESEARCH LAYOUT

The course of the research will be reported on as follows:
In chapter 1 a brief introduction on the problem at hand, the study and background has been given.

Chapter 2 contains a literature review covering literature published on CBE since the Alma Ata Declaration (1978). Community-based education and recent changes in medical education and assessment will be discussed. The need for attitudinal changes and orientation of students towards communities and CBE will be addressed. The importance of assessing CBE activities as part of summative evaluation of students will be discussed. Aspects of teaching and assessing attitudes and behaviour also form part of the literature review. The importance of integration of knowledge and learning in context to enhance the recall of knowledge will be discussed. The need for pro-activeness and the benefit of early student exposure to communities come under scrutiny. The possible influence of students' gender and language on their opinion and learning in the module will be reported.

Chapter 3 provides a description of the research methodology applied in the study. The theoretical aspects of the design will be discussed and the course of the study explained.

In Chapter 4 the results of the empirical study will be presented. The impact of CBE on students' attitudes and other aspects of educational value will receive attention. The value of CBE for communities will be discussed.

Chapter 5 will be devoted to a discussion of the study and in particular the outcome. The impact of CBE on students' attitudes and other aspects of educational value will receive attention. The value of CBE for communities will be discussed. Recommendations for

the implementation of the findings will be made, and possibilities for further research pointed out.

1.12 CONCLUSION

The need for medical curricular reform and the specific aspects of student training that need attention in the reformed curricula were highlighted. The importance of attitudinal and behavioural changes in future health care professionals was addressed. The value of community-based education as instructional method to achieve the aims of Curriculum 2000 was referred to. Problem statements regarding societal complaints about medical professionals, the maldistribution of doctors between public and private sector, the ratio between specialists and primary health care practitioners and the relevance to this study were mentioned. The aims of the study were documented and a brief description of the research method was given.

The next chapter will address a literature report exploring CBE as an important educational approach that could be used to influence student attitude and behaviour towards communities other than those they usually interact with. This literature study addresses aspects such as student attitudes, methods to enhance the integration of knowledge and skills, fair and relevant assessment of CBE activities and the evaluation of student opinion on this non-traditional approach. Chapter two will also refer to the role of the different partners in this educational approach.

CHAPTER 2

COMMUNITY-BASED EDUCATION

2.1 INTRODUCTION

A literature search complemented by the attendance of workshops in Cape Town (University of the Western Cape, 1997), Durban (Kellogg workshop report, 1997) and a Community Higher Education Service learning Projects (CHESP) workshop in 2001, contributed to the content of this chapter.

During the literature review attention will be given to the history and need for community-based education, an innovative teaching approach and tool to achieve the aims and objectives of curricular reform. The difficulty to compare and research different CBE activities will be highlighted. The need for research into and a taxonomy of CBE programs will be investigated and results reported. Student learning, with specific attention to the attitudinal (affective) domain and integration of knowledge, and contextual learning will be discussed. Finally, assessment of community-based education will be discussed in depth. The literature study will help to identify learning objectives that could be achieved through CBE activities. The review provided the researcher with valuable information regarding teaching strategies, potential learning experiences and, most important, the background information for this study

2.2 COMMUNITY-BASED EDUCATION

The definition of CBE and the clarification of the meaning of different terms like CBE, PBL and COE were discussed in chapter one (see 1.9).

2.2.1 Service learning

Service learning (see 1.9.8) involves two vectors namely, student learning and service in the community. The key-defining characteristic of service learning is the intentional balancing of the two vectors (Foos & Hatcher 1999: 11). Community-based education in the context of service learning could be classified as a scholarship of engagement. This engagement is between faculty and community. Fear, Rosaen, Foster-Fishman and Bawden (2001: 22) mention the four forms of scholarship, namely discovery, learning, engagement and integration, first described by Ernest Boyder. Outreach/engagement/service learning needs partnerships between communities and universities. The terms 'engagement' and 'service learning' are used rather than outreach, due to the fact that in service learning all partners benefit from the experience and it is not a situation where communities receive service and students learn. It is an interactive process where both learn and both receive a service (Fear et al. 2001: 22). Engagement is complex and cuts across teaching, research and service. This short reference to service learning is important, due to the fact that both concepts and approaches, "CBE" and "service learning", are used at the University of the Free State since 2000 when the Community Higher Education Service Partnership (CHESP) initiative was introduced to the University of the Free State. More recent literature, like that of Foos and Hatcher (1999:11) discusses "service learning". CBE and service learning are not synonymous concepts.

Service learning is presently researched in South Africa as part of a national research project at five South African universities of which the University of the Free State is one (CHESP Evaluation Study 2001:iv).

2.2.2 Importance of research on CBE

The importance of CBE or service learning will only be acknowledged if the work done by lecturers in this non-traditional form of instruction is carefully documented in such a

way that peers can evaluate it during the promotion and merit processes. A teaching portfolio with evidence that teaching and learning have occurred in the service learning or CBE course is important. Reporting on the process of planning, monitoring and subsequent course revision is essential to gain faculty support for CBE as instructional method (Foos & Hatcher 1999:46). Many institutions are now actively involved in CBE. Scientifically based research can guide role-players in how to implement this innovative teaching approach. Critics of change and reform are quick to point out that there is apparent lack of evidence underlying the ambition of reformers. Recent initiatives by academics like Ian Hart and Ron Harden seeking out best evidence for medical education (BEME), should put an end to these critics. The formation of an international group to co-ordinate and develop systematic reviews will support teachers and help develop guidelines, also for teaching in CBE. This form of research could put medical teaching on an equal footing with other elements in professional practice (Bligh & Anderson 2000:163).

2.2.3 The rationale of CBE

The rationale for CBE may differ widely from discipline to discipline and course to course. Three aspects addressed in CBE are important and specifically relevant in MED 113. The relevance will be discussed in chapter 5 (see 5.2.1.5). Linking theory to practice is the first aspect. The second aspect which completely diverges from the theory-practice model is the fact that students participating in CBE activities may be challenged to develop their moral imagination more fully. The teaching of ethical issues must be taken out of the classroom into the community, and within context - one of the objectives advocated by the WFME at Edinburgh. Finally, students have to grasp the importance of conveying health promotion messages to the communities. They have to display the ability to convey information they studied at college level to the community at lower educational levels. The need for health education of the community would convince the students of the academic integrity of the CBE activity (Zlotkowski 1999: 96).

2.2.4 Taxonomy of CBE and service learning

CBE modules world wide are structured differently, because different communities and universities have different needs, and health services are structured differently. A CBE taxonomy is thus useful to structure one's thoughts when discussing issues relating to CBE. The ultimate goal of CBE is to support the PHC approach, using a psychosocial approach in health care focusing on population-based public health. This, however, does not imply that CBE can only be done in PHC settings or only supports the PHC approach.

Due to the mentioned differences, it is clear that there is a need to classify CBE and community-oriented programs. There are two distinct reasons for the classification. The first reason is the criticism voiced that CBE has no scientific basis, and the classification would encourage the systematic approach to the study of CBE. Secondly, this classification could help to develop guidelines for implementing of CBE programs (Magzoub & Schmidt 2000a:103). Earlier classification differentiated between CBE, which is described as learning activities that utilize the community extensively throughout the educational experience, and community-based activity, which is short, isolated educational activities that take place in community settings (Magzoub & Schmidt 2000a:103).

Service learning programs are divided into those that focus on culturally and socially identified groups of under-served populations, and those under-served due to the geographic maldistribution of health services.

The taxonomy proposed for CBE is based on three main categories (Figure 2.1). It differentiates between programs that are primarily a) service oriented, b) research-oriented and c) training focused. Two sub-classifications of each of these categories are made. Service-oriented programs are divided into community-development and health-intervention programs. Research-oriented programs are sub-divided into health faculty-based and community-based programs, and training-focused programs into primary care

and community exposure programs.

The CBE component of Curriculum 2000 could be classified for its greatest part as a training-focused CBE program. Most of the CBE activities of Curriculum 2000 take place in PHC settings. In Phase I the CBE activities in MEC 113 (The Doctor and the Environment) could be classified as community exposure whereas the MED 113 CBE Expo can be classified as a service oriented program in the subcategory "health intervention". The intervention is at the level of health education, provided by the students, by means of the posters and brochures developed for the assignment. Planning and implementation of these activities include all the partners in the learning process, which in the MED 113 research are represented by faculty, community and services (NGOs). The practical research component of module MEH 123 (Biostatistics and Epidemiology), which is done as part of MEC 113, is research-oriented and community-based. With this activity students complete questionnaires determining the health service seeking behaviour of clients at a clinic, the socio-demographic profile of the patient and the health status of the family of the patient (Prinsloo 2003).

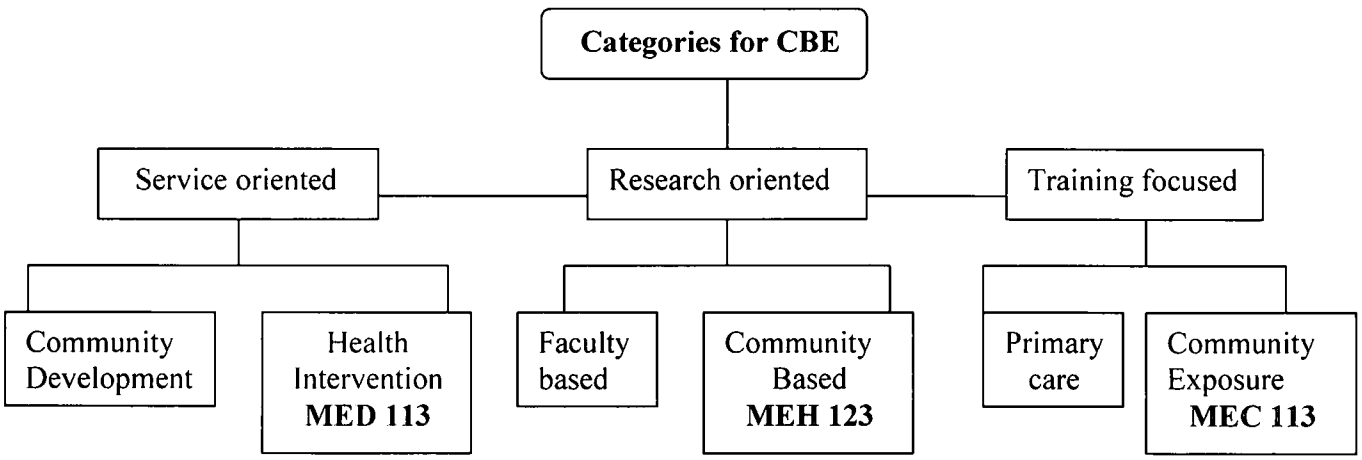


Figure 2.1: Taxonomy of CBE and Classification of Curriculum 2000 CBE activities (adapted from Magzoub & Schmidt 2000a:103)

2.2.5 Determinants and pre-requisites for success in CBE

Various determinants and pre-requisites for success or failure of CBE are important. In CBE partnerships different role-players are involved including the student, the community (being the learning environment), the services and the lecturers/faculty (Kellogg workshop report 1997). Any deficit or problem involving one of these role players would influence the learning process. Each role player has its own objectives and terms of reference. The student wants to be trained to become a professional. The community needs recognition and services. The lecturer/faculty must teach and train professionals with the relevant knowledge, skills and attitudes to serve the community they work in. Optimal involvement and satisfaction of all role-players will enhance success. The formation of partnerships between the different role-players, like the one between the University of the Free State, the Mangaung community and Health Services (MUCPP) is an excellent example (MUCPP Narrative report 1999). A short discussion of the responsibilities of the various role-players is important to support the research done in MED 113.

2.2.6 The roles of the different partners in CBE

2.2.6.1 The role of the university

When discussing the role of the university in CBE it is important to note that the vision and mission of the university should endorse public accountability. Without commitment from top management, attempts at CBE will have limited success, due to the fact that policy guidelines regarding curriculum, funding, logistics and administration are essential. The vision, mission and values of the School of Medicine of the University of the Free State support CBE. Universities and medical schools should leave their cloistered environments and venture into the world to grapple with problems of society and take responsibility for the health of their local populations (Bryant 1993:217). Social accountability, and thus community-based education, is currently in the frontline

(Howe 2002:9). Changes in medical education should go beyond curriculum content and educational method. New partnership should be formed, linking medical schools more closely with the world outside their walls (Boelen 1993: 216).

2.2.6.2 The role of the student

The role of the student is to learn from all partners, conduct research, contribute towards community development through community development programs and to be an active partner in the planning and implementation of community service learning activities (Kellogg workshop report 1997).

If students do not understand this role, or do not endorse the principles of a curriculum, as was the case in Gezira it may lead to problems. Magzoub and Hamad (2000:241) reported on the struggle for relevance in medical education at the University of Gezira. The program was implemented in 1978. Their first challenge experienced, related to students' attitude towards the program in this community-oriented, community-based medical school. Enrolled students and doctors who graduated from an old traditional curriculum dismissed the Gezira approach as unrealistic and unscientific. Students called a series of strikes in the first two years of the program (Magzoub & Hamad, 2000: 241).

2.2.6.3 The role of the community

The community is an important partner and when selecting communities to participate in CBE activities they should realize their responsibility. Faculty should also recognize and acknowledge their strengths and potential contributions, which include academic/service site identification, participation in planning and program activities, sharing their resources, mobilizing community participation, facilitating community access for students, academics and services and participation in service training planning (Kellogg workshop report, 1997).

In a research study done at Gezira by Magzoub and Hamad (2000:241) the importance of

community involvement is emphasized. The second challenge for the Gezira program was sustainable community involvement. It is actually an indication of community satisfaction with the CBE process. Magzoub and Hamad evaluated community satisfaction by means of process evaluation and not outcome evaluation. The community was involved in all aspects of the program including both the planning and the implementation (Magzoub & Hamad 2000:247). In chapter 5 (see 5.1.2.4.1b) a comparison with the MED 113 study will be made.

2.2.6.4 The role of the services

The services are of equal importance if they participate in the CBE activities. They should participate in planning and implementation of training. Service personnel contribute to the training of students by being involved in supervision of students, facilitation of multi-professional and multi-sectorial collaboration, providing, maintaining and sustaining Primary Health Care (PHC) facilities and services, and providing policy guidelines at national and provincial levels (Kelloggs workshop report 1997). A study addressing community agency satisfaction was done at the University of Connecticut, School of Medicine, in the USA (Magzoub, Ilyas, Lewis & Schmidt 2000:384-5). Students in their third year of medical school were exposed to community agencies including public schools, rehabilitation units, home care programmes and substance abuse treatment programs. This program has been running since 1990 and a study was done for the period 1990-1995, including 450 students and 50 agencies. Community members from different agencies rated the students. They had to present a health education message and were also evaluated on agency experience. Ratings were done on a five-point scale. There were six items for the health education presentation and seven items for the evaluation of the agency experience. Projects like these also demonstrate to communities and services that there are and in future will be physicians who are responsive to their needs and who care about their problems. A comparison is drawn in chapter 5 (see 5.2.1.4.2) between this study and the MED 113 study.

2.2.7 The impact of CBE

A CBE approach does have an effect on graduates. A study comparing graduates from a traditional curriculum with students trained in a CBE curriculum yielded the following the results: Magzoub and Schmidt report on research done at Gezira during 1992 by Abel Rahim on the impact of CBE as educational approach. An evaluation done on graduates trained in a CBE curriculum during their internship, by senior physicians who were not involved in their training, gave the following rating when comparing them to students trained in traditional schools: 50% comparable, 45% better, 5% worse. A Likert scale was used and the criteria evaluated were attitudes, cognitive and clinical skills respectively (Magzoub & Schmidt 2000b:410). In chapter 5 (see 5.2.1.1.2 c) a comparison will be drawn between this study and the MED 113 research.

In another study at Gezira University where students also worked in groups of ten, peer evaluation was done on aspects like leadership skills, interaction with community members, and contribution of subject matter in work sessions. Community interaction was measured by six items addressing communication skills, facilitation of data collection and project implementation and evaluation. Subject matter contribution (knowledge) was measured by means of four items reflecting the students' ability to utilize their gained knowledge to progress to attain the course objectives. Leadership qualities were tested by four variables and another six items measured participation and student effort.

Students filled in a rating scale with 20 Likert-type items in this study (Magzoub & Schmidt 2000c:58). The results of this study are not comparable with the MED 113 study as will be indicated in chapter 5 (see 5.1.2.4.1 b).

Table 2.1 illustrates the subject matter and number of variables used in the study.

Table 2.1: Subject matter and number of variables (Magzoub and Schmidt 2000c:60)

Subject matter	Number of Variables (Items)
Community interaction	6
Leadership qualities	4
Subject matter contribution (knowledge)	4
Participation	6

Average scores for each of the variables included were computed for individual students. Some of the variables could only be measured at the level of the community involved and the students were then assigned an average score on these variables. The analysis was carried out at the individual student level, although measures of some of the variables were done at group level. The data were analysed using structural equation modelling which allows one to test causal hypotheses among multivariate data. One of the variables tested was leadership. Most of the causal paths are quite high, particularly between leadership displayed and the other elements of the model. Strong leadership also improved the interaction with the community. The quality of the community selected proved to be of importance. It increased the efforts displayed by the students and also the interest students displayed with regard to the problems with which the community wrestled (Magzoub & Schmidt 2000c:60). The results are documented in table 2.2.

Table 2.2: Correlation between variables of interest (Magzoub and Schmidt 2000c:60)

	Quality	Leadership	Interaction	Effort	Knowledge	Achievement	Impact	Interest
Quality	1.00	.3785	.4558	.4121	.4464	.4451	.6769	.4726
Leadership	.3785	1.00	.8120	.7979	.8522	.5681	.4548	.7800
Interaction	.4558	.8120	1.00	.7591	.7639	.6029	.5155	.9329
Effort	.4121	.7979	.7591	1.00	.8750	.5888	.6317	.7384
Knowledge	.4464	.8522	.7639	.8750	1,00	.6338	6244	.7336
Achievement	.4451	.5681	.6029	.5888	.6338	1.00	.4409	.5454
Impact	.6769	.4548	.5155	.6317	.6244	.4409	1.00	.5407
Interest	.4726	.7800	.9329	.7384	.7336	.5454	.5407	1.00

2.3 THE RELEVANCE OF CBE IN CHANGING MEDICAL EDUCATION

2.3.1 Historical background

Three periods can be distinguished in the history of medical education. These periods include the pre-Flexner period (before 1910), during which apprenticeship was the method of teaching, the Flexner era (1910-1970), with the emphasis on the biomedical model, and the community-oriented model of education, more recently advocated (Magzoub & Schmidt 2000d:27). Most medical schools embarking on a curriculum reform process incorporate some or other form of CBE model into their changed curricula.

2.3.2 Rationale for curriculum reform towards CBE

The Flexner-model resulted in an increased emphasis on factual knowledge in medicine and a discipline-based approach to health problems. Universities adopting this model did most teaching in classroom, laboratory and tertiary care university hospital settings. This resulted in graduates from these universities knowing very little about community problems and not being prepared to work in remote and rural areas (Magzoub & Schmidt 2000d:27).

Two major postulated problems arise from this teaching model. First, students have serious problems adapting to environments alien to those they have been trained in. The disease spectrum of the patients referred to the tertiary settings only represents 1% of the spectrum of patients normally seen by physicians in the community (Schmidt, Magzoub, Feletti, Nooman & Vluggen 2000:8). Students are curatively inclined and are generally rarely taught how to approach the 99% of problems they are not exposed to during their training. Specialist disciplines lack teaching time, material and commitment to teach students about commonly occurring primary health care problems. Some diseases and problems need care and need to be addressed in a team approach, with the patient as

active participant in the management of the problem, and not just a recipient of treatment modalities. Secondly, students graduating from institutions where most training was done in the above-mentioned settings prefer to practise in private practice and in places with adequate technical resources and educational facilities for their children. Students have serious trouble adapting to environments alien to those they were trained in (Schmidt et al. 2000:7). This leads to a maldistribution of doctors and inequitable access to health care by different communities.

A survey done in South Africa during 1998 indicated that the total population consisted of 41 660 406 people of which 33 907 683 (81%) were dependent on the public sector for health services. There is a total number of 27 551 medical practitioners in South Africa with a ratio of one doctor for every fifteen hundred and twelve (1:1512) people. The number of doctors working in the private sector is 19 935 (72.4%) and that in the public sector 7 616 (27.6%). There is 1 doctor for every 389 people in the private sector and 1 for every 4452 people in the public sector (Van Rensburg & Van Rensburg 1999: 214).

Studies have been done to determine if exposure to PHC and CBE influenced student choice of speciality or work environment. The researcher's interest in these studies was to determine if early exposure of students to CBE would influence their career choices. In a retrospective study done by Xu, Hojat, Brigham and Veloski (1999:1012) on 2600 physicians graduating from all USA allopathic medical schools during 1983 and 1984 1561 respondents' data were analysed. With regard to interest in PHC, 48% of respondents' interest stayed the same during medical school, 45% increased and 7 % decreased. Of those whose interest increased, 56% had decided to enter primary care during clerkship years, whereas 52% of those whose interest had remained the same had decided to enter primary care before medical school. Those whose interest had decreased had mainly decided to enter primary care after their clerkship year. Of those physicians whose interest decreased 70% had elective clinical experience in primary care, compared to 86% of those whose interest increased.

Table 2.3 indicates the change in preference for PHC of physicians during their undergraduate studies according to Xu et al (1999).

Table 2.3 Associations between changing levels of interest in primary health care during medical school and the times of deciding to enter PHC, interest expressed prior to medical school, clinical experiences with primary care and future plans of 1 561 physicians who graduated in 1983 and 1984 from all USA allopathic medical schools (adapted from Xu et al. 1999)

	Changing level of interest in PHC		
Variable	% of 742 physicians whose interest remained the same	% of 706 physicians whose interest increased	% of 706 physicians whose interest decreased
Time physicians decided to enter primary care			
Before entry to medical school	52%	26%	35%
During pre-clinical years	4%	8%	2%
During clerkship	28%	56%	21%
After clerkship	15%	11%	42%
Elective clinical experience in Primary care			
Yes	79%	86%	70%

In a study done by Robert Bowman, it was found that over 30% of students interested in rural practice had already decided to become family doctors before matriculation (Bowman 1999:2).

In response to the inequitable distribution of medical resources, various organizations such as the WHO (1994:28), WFME (1993:140), and others called upon the schools for health professions education to bring about change in the curriculum in order that the actions of graduates might contribute to the improved health status of the population. The CBE approach represents one possibility for change that schools for health professions education can pursue (Schmidt et al.2000:8).

2.4 STUDENTS AND LEARNING

Learning takes place in three different domains, namely knowledge, attitudes and skills, also classified by Bloom as the cognitive, affective and psychomotor domains (Forsyth, Jolliffe & Stevens 1999:37).

Teaching strategies in medical education should address all three these domains. The affective domain is becoming increasingly important in medical education. In this domain the skills that need to be learned range from the lower order awareness to the higher order valuing. Students become more skilled at learning as their experience and contact with the learning process develop and expand.

To address learning in the affective domain and influence attitudes, teaching strategies should be aimed at maximal contact with learning processes that expose students to the said lower order awareness and higher order valuing (Forsyth, Jolliffe & Stevens 1999:39).

Universities are expected:

> *...to equip their graduates with a range of competencies that can be applied throughout their professional career* (Engel 2000:224).

Some of these competencies include the ability to adapt and participate in change, manage unfamiliar situations, participate in teams, pursue life-long self directed-learning and communicate effectively (Engel 2000:225). The application of these principles on the MED 113 study will be discussed in chapter 5 (see 5.2.1.1.2).

2.5 KNOWLEDGE

2.5.1 Integration of knowledge

CBE activities should be utilized as a learning resource. Howard (1993:218) proposed ten principles of good practice in service learning:

- Academic credit is for learning, not for service. Student grades are for the quality of learning and not for the quality or quantity of service.
- Academic rigor should not be compromised. The additional workload imposed by CBE may be rewarded with an extra credit, but not by lowering academic learning expectations. This is an important principle.
- Learning goals should be set for students. The learning experience in CBE is so diverse that it is essential to identify the specific course learning goals.
- Specific criteria should be set for community placement. Learning extracted from CBE activities done according to specific criteria are of better use than those done where placement criteria do not exist.
- Educationally sound mechanisms should be provided to harvest community learning.
- Support should be provided for students to learn how to harvest the community learning. Experience as a learning format in and of itself does not consummate learning, nor does mere written description of one's service activities. Discussions, presentations and assignments provoke analysis of service experiences in the context of the course learning. This ensures that the CBE activities achieve its role as an instrument of learning. Students should also be assisted in acquiring the skills necessary for learning from the community.
- The distinction between a classroom learning role and a community-learning role should be minimized. If students are expected to perform a learning-leader role in the community, they should be allowed to and taught to assume a similar role in the classroom, or at least be taught how to exert leadership skills when engaging with the community.

- Faculty's instructional role should be re-thought. One should move away from information dissemination and a teacher-centered approach towards learning facilitation and guidance. This supports the SPICES model of Ron Harden (cf. 1.1).
- There should be room for uncertainties and variation in student learning outcomes. In the classroom the learning stimuli are constant for all students. The variability in CBE placements leads to less certainty and homogeneity in learning outcomes. Even if students are exposed to the same situations, the content of student papers will be less homogeneous than in courses without a community assignment. Community responsibility of the course should be maximized. Students should realize that they learn from the community and the community learn from them.

2.5.2 Knowledge networks

According to van der Vleuten, Dolmans and Scherpbier (2000), knowledge needs to be structured through relationships between knowledge elements and concepts in a network. Each individual establishes knowledge networks due to life experiences. Knowledge networks differ from person to person, depending on the individual's learning experiences and acquired experience. In CBE students are exposed to different experiences to help them establish knowledge networks. Learners are the architects of their own learning (Van der Vleuten et al. 2000:247). An important factor impacting on learning is the context in which learning occurs. Learning is a process that results from interaction with the environment. Curricular change and training of lecturers are but only two aspects that are important in the CBE approach. The context in which the training takes place, namely the university, the health care system and the societal needs are important in the education of "tomorrow's doctor" (Bryant 1993:227). Students need to learn by discovery due to experience in the social, political, environmental, economic and health sectors. While reflecting (mental exploration of the experience), they use prior knowledge and think critically in the context of real life settings (Bryant 1993:224).

The formation of knowledge networks in MED 113 will be discussed in chapter 5 (see 5.2.1.1.1).

2.6 SKILLS

Different transferable skills of importance in medicine can be identified. In a Nepalese study 21 skills were identified and grouped into five categories, namely information handling, organizational skills, information technology skills, self-learning skills and presentation skills (Shankar, Mishra & Partha 2002:3). Table 2.4 summarizes these skills.

Table 2.4 Transferable skills in Medicine (Sharkar, Mishra & Partha, 2002:3)

Information handling	Extracting information from library Extracting information from internet and CD-ROM Selecting information Interpreting information
Organizational skills	Managing time Planning tasks
IT skills	Word processing (MS-Word) Spread sheets (MS-Excel) Power point Statistical techniques
Self-learning skills	Managing stress Teamwork Decision making Learning from others Taking the lead Constructive feedback
Presentation skills	Oral presentation Written communication Presentation to patients Presentation to doctors Poster presentation

2.7 ATTITUDES

The issue of addressing attitudes and behaviour in medical education is mentioned throughout the literature. During the literature search important documentation on medical education was screened to determine exactly what was meant with the statement that attitudes and behaviour need to be addressed.

2.7.1 The need for attitudinal change

The following discussion gives a summary of the most important documentation referring to the needs to address student attitudes.

> *The medical profession is facing mounting criticism from the public with increasing accusations of hurried consultations, non-availability when needed and unwillingness to give explanations, using intermediaries and general failure to listen* (Martin 1990:108).

Martin postulates that the reputation of the medical profession may depend more on addressing these criticisms than any other major advance in health care. Curriculum reform with specific attention to attitudinal objectives addresses these criticisms. Attitudes are linked to knowing how to act. Attitudes can be established and organized through learning. In curriculum reform educationalists are particularly concerned with the impact of attitudes. Physicians in training should demonstrate attitudes of respect, integrity, and responsiveness to patients when faced with challenging situations. Addressing attitudes can be linked to a specific context, just like problem-solving and learning skills (Lacombe & Des Marchais 2001:134).

There are three components to attitudinal training, namely the cognitive, the affective and the behavioural. Students demonstrate humanistic behaviour through four specific characteristics (Cote & Des Marchais 2001:199):

a) communication skills and the ability to listen;

b) intellectual integrity towards oneself and others;

c) respect for the values of others;

d) an empathetic and judicious manner of responding to a problem or need.

The first two (communication skills and intellectual integrity) are prerequisites and are essential to the demonstration of humanistic behaviour.

Two capacities are critical to the practice of humanistic medicine, namely empathic ability and humanistic attitudes. Each of these capacities develops distinctly, but is interconnected and students' development of these is triggered by specific experiences of medical training (Marcus 1999:1211).

> *Empathy is the ability to understand another person's emotional or life experience: it is to share those emotions' content but not their intensity* (Marcus 1999:1211).

Teaching of ethics and values should occur within the context of formative, early experiences. Without emotional and contextual relevance, curriculum content cannot change attitudes (Marcus 1999:1215).

Medical humanism (see 1.9.7) presupposes professional competency (Cote & Des Marchais 2001:180), and students display humanistic characteristic if they do not only treat patients, but also care for them.

> *The actualization of humanistic behavior .... is brought about by an active process in which students take ownership of new learning, not just about attitude and know-how, but also about the judicious application of knowledge specific to this dimension. Appropriate assessment... for each of the components specified, gives students the necessary data to advance their process of medical humanistic*

learning (Cote & Des Marchais 2001:199).

Some problems with humanistic components are suicide, confidentiality in AIDS cases, therapeutic abortions, epilepsy and sexuality (Cote & Des Marchais 2001:187). Topics in the MED 113 Expo resorted under this list (Appendix 1).

Eight years after embarking on humanistic learning activities, the Medical School of Sherbrooke critically evaluated if the noble goal of the reform initiative had been fulfilled (Cote & Des Marchais 2001:180). Their course commenced in 1987. In 1991 students were involved in the evaluation process. Questionnaires were sent to the 1987-91 and 1989-92 cohorts. A cohort consisted of a student group who commenced studies in either 1987 and were in the fifth year of study during 1991, or commenced study in 1989 and were in the fifth year of study in 1993. 70% of the first and 50% of the second group responded to the anonymous questionnaires. These students were asked to evaluate how humanistic concepts were integrated into discussions during tutorials, to cite the three activities that contributed most to their acquisition of humanism, to describe medical humanism, to evaluate certain assertions about the pertinence of humanistic teaching during the pre-clinical period and to formulate suggestions.

Irrespective of the cohort, 70% of students considered the pre-clinical phase to have supplied a sufficient number of opportunities to learn medical humanism (see 1.9.7). Medical humanism addresses attitudes and behaviour. For the students medical humanism consisted of:

> *...not judging, harmonious coexistence, being ready to listen to others' needs, establishing a good relation with the patient and the patient's setting;...viewing the patient holistically, understanding his or her perceptions,...displaying patience, an absence of prejudice, and open-mindedness; displaying respect, a readiness to listen, and empathy towards others;...seeing the patient and his or her overall well-being as one of our own priorities; being able to deal with the*

patient as a total human person;...maintaining respect for individuals, their basic rights, and their values; displaying empathy and respect (Cote & Des Marchais 2001:198).

These perceptions of students regarding humanism do not totally correspond with the definition of medical humanism (see 1.9.7), but often reflect attitudes and culture.
Howard remarks that CBE:

> *...offers an opportunity to reconsider prior values, ethics and attitudes. It encourages student self-direction and learning about self. It brings books to life and life to books* (Howard 1993:220).

The Yaounde Report (1994), one of the initial documents compiled to guide curriculum reform, referred to the issue of attitudinal and behavioural change repeatedly. Prof. G.L. Monekosso, the then WHO Regional Director of Africa, alluded in his presentation that the part of the curriculum that needed the most attention, was the one on the attitudes of the future doctor. Important behavioural objectives for the changing role and profile of the doctor of medicine were summarized as follows (WHO 1994:5;28-29):

- Ethical characteristics, which include empathy with patients, families and communities, acting as role model for others, respect and confidentiality, dedication to work and work ethics, equal consideration to all patients irrespective of their socio-economic backgrounds, importance of patient above the disease and the maintenance of ethics in health care delivery, both right and good for patients and communities (WHO 1994:9;2). These objectives would produce students who could identify social, cultural, psychological and economic factors, which influence the health of individuals, families and communities.
- Teamwork (WHO 1994:9;4): Learning objectives relating to teamwork refer to students being able to communicate with individuals, families and communities and establish inter-professional and inter-sectorial relations.

- Response to community needs: Learning objectives related to community needs are the ability of a student to evaluate the state of health of individuals, families and communities, as well as the link between their health and environmental and behavioural factors.
- Leadership roles: Learning objectives relating to leadership skills would produce students able to lead a health team.
- Self-directed learning: Learning objectives of self-learning would produce a student that is able to carry out self-evaluation, obtain knowledge on his/her own, and update knowledge and practice by him/herself (WHO 1994:9;5).

At the Edinburgh Summit the WFME (1993) identified important issues to be addressed in medical education and curriculum reform and made 22 recommendations. Some of the recommendations relevant to the research at hand were addressed in the CBE component of Curriculum 2000. Recommendations from this summit included:

- The ethical basis for medical practice which states that there is a need for teaching of ethics to move from classroom to bedside and the community where students can learn from interaction with others. The fact that advances in science and the limitations of resources raise new ethical issues were also highlighted.
- The need to identify community needs and prioritize resource allocation accordingly was stressed.
- Support for social justice and equal opportunities. AIDS and other chronic conditions challenge the doctor's social sensitivity and ethical responsiveness, calling for a different approach to medical education for the doctor of the 21st century.
- The challenges to moral reasoning facing institutions responsible for the training of future doctors. Medical training has to move from a predominantly biomedical model to one that also addresses psychological and social aspects (WFME 1993: 143). Students must be encouraged to think carefully about complex moral issues to become practised in moral reasoning (Bryant 1993:224). This principle was

implemented in the MED 113 assignment and workshops and will be discussed (see 5.2.1.1.3).

- Teaching students the importance of communication with patients, public and colleagues is another objective that needs attention in curriculum reform. Students should participate in various communication activities, the outcome being that future doctors would be:

  ...(s)killed communicators, better able to listen, understand and advise patients, inform and educate the public, and speak for patients, communities and society (WFME 1993:148).

Teaching students to communicate and the achievement of the objective in the MED 113 CBE assignment are discussed in Chapter 5 (see 5.2.1.1.3).

The WFME summit endorsed participation of communities in medical education. It postulated that community orientated medical education with community participation would result in increased accountability and relevance of medical education, enhance community compliance with health initiatives, and promote development and improved health.

The document "Blueprint 1994: Training of doctors in the Netherlands: Objectives of undergraduate medical education" (Metz, Stoelinga, Pels, Rijken & van den Brand 1994:37) mentions the following objectives for student training:

- Having the right attitude;
- Being dedicated and accepting responsibility for the physical, mental and social well being of people;
- Having social and communication skills. Treating patients with respect, disregarding gender, race, age, social and economic status, education, cultural background, sexual preference and philosophy of life, are important issues;

- Having the ability to give clearly formulated information to the patient and having empathy with the patient and his environment.

The doctor with the right attitude would be critical towards his/her own work and that of others and would understand the need to prevent disease.

Behavioural training is becoming increasingly important due to the fact that the population is becoming increasingly educated and demanding (Curtoni 1999: 34).

Another important document referring to attitudes and behaviour is the document "Education and training of doctors in South Africa", compiled for the Medical and Dental Professions board in March 1999. Attitudinal objectives mentioned in the other major documents are summarised and propagated in this paper (HPCSA 1999).

Morgan and Streb (2001:155) report that it is important to allow students to learn that they can have a positive impact on their community and provide them with concrete experiences where they are personally involved in specific experiences that should influence future behaviour and attitudes. It is also important to promote tolerance in students.

> *People are especially likely to hold negative stereotypes about groups of people with whom they do not interact. .....Students hold stereotypes about disabled as well...* (Morgan & Streb2001:156).

In a study done by Morgan and Streb (2001:165) it was reported that service learning had an impact on student attitudes towards the elderly and disabled people. They used questions modified from the ABT Report (Morgan & Streb 2001:162). In those that had more of a voice in their service learning projects, the respondents were more likely to agree that they could learn from and work with the elderly, as well as to believe that those with disabilities could hold jobs. This study was done during the 1997-1998 school year

in Indiana where 10 schools participating in service learning projects were included into the study. The survey was done in a pre/post format using a Likert-type questionnaire . The student voice variable was based on the statements relating to responsibility, challenging tasks, involvement with planning the project and decision making. The goals of the different service learning projects in the different schools were diverse. Not every project involved interaction with disabled, but all the responses of the students in the ten school projects were pooled. The fact that there was such a significant increase in positive attitude towards disabled suggests that service learning has an even greater impact on tolerance in general (Morgan & Streb 2001:166). The service learning survey was done on youth. Two theoretical models are quoted to shed light on the question of connecting the attitudes of the youth with the political attitudes and behaviour of adults. The principles referred to in the models are the "primacy" and "structuring" principles. The primacy principle holds that political attitudes are learned early in life and the structuring principle also assumes that orientations that are developed early will persist (Morgan & Streb 2001:157).

2.7.2 Appropriate training sites to address attitudinal training

While teaching in tertiary settings is important and essential for post-graduate and specialty training, the teaching hospital can mislead students as to their future role as doctors. Suggested actions are to expose students to various environments both medical and non-medical, including schools, villages, workplace and households (WFME 1993:149). This will ensure that students would have contact with a more realistic array of health care problems and human conditions. It will enrich their hospital experience. The desired outcome would be that, provided these

> ... *(e)xposures were based on rigorous scientific principles, the use of wider settings will produce better equipped, more satisfied practitioners ... aware of the necessity for multi-professional teamwork* (WFME 1993:149).

These arguments motivate the search for appropriate sites and activities to expose students to CBE in MED 113.

2.8 ASSESSMENT

Assessment of students in general is of utmost importance. One should take a holistic view on assessment (Olivier 1998:70). Any form of assessment should be fair, valid and reliable. To ensure that students accept the importance and relevance of assessment, it should be credible. Credibility depends on validity and reliability. In research, validity is the absence of significant bias (Katzenellenbogen, Joubert and Abdool Karim 1997:126). Important types of validity in assessment would be face validity, concurrent validity, construct validity and content validity. Referring to assessment, validity could be expressed as the extent to which a method of assessment measures the intended competence as displayed by a student (Engel 2000: 231). Students have to be conversant with the purpose of any assessment. Important factors are how, what, where and when assessment will be done. Briefly this means that specific criteria must be set and students should ideally be involved with the development or at least understand the aims of the assessment. Faculty needs to decide the purpose of assessment (Engel 2000:222). This decision will impact on the method of assessment. Principles relating to faculty decisions on assessment can then be applied in the context of CBE and the method and form of assessment.

2.8.1 Types of assessment

Different types of assessment address different goals. Formative and summative assessments are two different types of assessment and will be discussed in some detail before looking at the rationale for assessment in CBE. Formative and summative assessment should be combined. Assessment should be more diagnostic in order to guide, redirect and assure learners of their progress (Olivier 1998:45).

2.8.1.1 Formative assessment

Formative assessment is done in an informal non-judgmental way. It is used to encourage students and build their confidence. The marks obtained do not have any punitive consequences and cannot contribute to a final assessment mark. The fact that it does not contribute to final assessment marks might influence the effort students put into the preparation for the assessment. As previously mentioned, assessment must have credibility to ensure that students accept the importance and relevance. Because this form of assessment does not contribute to student module marks the credibility is even more important.

Feedback given on formative assessment has the objective to show students how to adjust and redirect their learning (Engel 2000:222). Formative assessment is not a once off assessment, but takes place throughout the duration of the learning (Olivier 1998:69). It allows for feedback, remedial activities and additional support that might be needed (Olivier 1998:69). This method of assessment is time consuming and labour intensive. The question is whether this form of assessment is practical and feasible within a faculty. Resources, time and commitment are important factors (Engel 2000:233).

2.8.1.2 Summative assessment

Summative assessment, on the other hand, expects students to demonstrate if they can integrate what they have learned in the preceding days, weeks, months or years (Engel 2000:223). This form of assessment should take place at the end of a period and should confirm that students have met the set standards (Olivier 1998:69). This form of assessment contributes to formal module marks and has an impact on whether students can proceed to the next stage in the program and if they are fit to practise competently and safely. The primary function of summative assessment is to help address issues of learning event continuance (Forsyth et al.1999:5). Both students and lecturers take this form of assessment seriously, because it can have the punitive measure of failing a

candidate.

2.8.2 Agents of assessment

Different agents can be involved in the assessment process. Instead of just employing teachers in assessment, self-assessment, peer group assessment and assessment by community members involved in the learning process become more important in order to achieve well-balanced assessment (Olivier 1998:45). These principles were applied in the assessment of the MED 113 Expo.

2.8.3 Rationale for assessment in CBE

Dixon, Lam and Lam (2000:339) report that

> *(I)n an overcrowded curriculum, students ration their time and energy, focusing their learning pragmatically on subjects that have a high profile during examinations* (Dixon, Lam & Lam 2000:339).

Assessment and the appropriate assessment tools in CBE are important. Determining assessment criteria is mandatory. The final component of a course is assessment and it drives student learning (Snadden & Mowat 1995:300). By addressing a definite student need a course may transcend the usual experience that assessment drives learning (Snadden & Mowat 1995: 303).

Assessment can be done to monitor and reassure lecturers that students do benefit from their teaching, however, this should not be the ultimate goal of assessment. The method of assessment is linked to the characteristics of the curriculum (Olivier 1998:44). A CBE approach focuses on the outcome rather than on the content. According to Engel (2000:222) criteria for student assessment will be shaped by two different aspects, namely the definition of "community" used by the institution and the explicit goals of the

curriculum. Students need to understand that the term "community" does not have one single definition (see 1.9.3).

2.8.4 Criteria for assessment in CBE

With CBE projects that are very disparate, the concern of objectivity is valid and the paper of Engel (2000) highlights this. The key for the assessment to be fair lies in setting clear assessment guidelines to be followed by all markers regardless of the topic of the reports. Characteristics for grades should be clearly defined in terms of clarity of expression, flow, depth, logic, referencing, illustrations, visual presentations, content, accuracy and critical thinking.

Engel refers to four goals or outcomes for a community-orientated and CBE education program. These include: a) care for individuals with a bio psychosocial-approach; b) care for individuals, addressing promotion and maintenance of health, as well as presentation and treatment of illness in a PHC approach in the community; c) group care by attending to groups with common needs that are related to health or disease, and d) population care in a public health approach by attending to a population and its needs that are related to health or illness (Engel 2000: 223). These goals could be used to set criteria for assessment. These criteria must be adjusted appropriately to the level of competency and grades of different students being assessed. The assessment should be regarded as part of the learning process and not as a means on its own (Olivier 1998:45). Assessment of the process of how students collect, analyse, organize and evaluate information is important. The effectiveness of the use of communication skills in oral or written presentations is also important. Effective teamwork and the ability to show responsibility towards the environment and the health of others are important and are but a few aspects that ensure a well balanced assessment (Olivier 1998: 46).

Table 2.5 summarizes possible performance indicators for assessment in CBE.

Table 2.5: Integrated assessment program frame work (adapted from Olivier 1998:70)

Specific outcome and supportive tasks	Assessment criteria and performance indicators		
	Knowledge	**Skills**	**Processes**
Students must be able to care for individuals in a bio-psychosocial approach. Students must be able to care for individuals addressing promotion and maintenance of health as well as presentation and treatment of illness in a PHC approach in the community. Students must be able to attend to groups with common needs that are related to health or disease and Students must be able to attend to population and its needs that are related to health or illness.	How effectively do students use technology, science and critically show responsibility towards the environment and the health of others?	How does the student work with others in a team, groups, organization and community? Are students able to communicate using visual, mathematical and language skills in the modes of oral or written presentations?	How do students collect, analyse, organize and evaluate information? How do students interact with the problem, co-learners and others in the learning process that takes place?

CBE lecturers warn against the dangers of including assignments only as a structural add-on and stress the importance of being sensitive to students' personal circumstances and the dangers of sending unwilling, even resentful students into the community. The possibility of earning more credits by participating in CBE and judging and awarding it appropriately is mentioned (Zlotkowski 1999:111).

2.8.5 Assessment and student learning

The question asked is whether the curriculum drives learning. Van der Vleuten et al. (2000:248) postulate that students define success by being able to pass the examinations. They will exert maximum effort to optimize chances of success. They will do whatever the examination program tells them to do and they will not do whatever the examination program does not reward. "For students the examination program is the curriculum" (Van der Vleuten et al. 2000:248).

In a qualitative study done by Dixon et al. (2000: 339) it is concluded that in an overcrowded curriculum students ration their time and energy, focusing their learning on subjects that have a high profile during examination. The absence of assessment in a rotation causes the students to see it as an opportunity to "take a breather". The first priority is to pass the examination and this priority overrides the interest of the student. The interest of the student can never be the first priority, until the final examinations is passed.

Some programs have the philosophy of self-directed learning (SDL). The St Bartholomew's and the Royal London School of Medicine and Dentistry offer students the choice of didactic learning or SDL. Most opt for didactic learning. In that program SDL takes many forms, for example paper case histories, library assignments, people-based assignments, project-work and poster presentations. In a research study done at that institution, student response to SDL was variable. Some take it seriously, while others equate it with student free time (McCrorie 1997:370). The research concludes that there is no doubt that students pay more time to SDL if it is assessed. One of the students responded to a question on the value of case studies and formative assessment that it was a waste of time due to the fact that it was a formative and not a summative assessment.

In response to this and other student comments the staff decided to allot more time to assessing the SDL activities and also to change from formative assessment to summative

assessments for these activities (McCrorie 1997:371). The principle to change to summative assessment because students did not take the work seriously, should not be the norm. Formative and summative assessments should be combined. Assessment should be more diagnostic in order to guide, redirect and assure learners of their progress (Olivier 1998:45). Formative assessment should form an important part of assessment in any module.

The assessment in the Bartholomew study was done on case studies. The assessment was integrated and set in the context of real patients. The research indicated that students were more motivated and had a greater recall of information when assessment was done in this way (McCrorie 1997:371). Although some students saw the assessment as a waste of time, the Bartholomew study indicated that students used multiple resources to prepare for their assessment. The normal dependency on lecture notes was absent. They mentioned the use of peers as a resource. The assessment thus achieved much more than just assigning a module mark for knowledge. The achievements of students in this study actually correspond with the achievements proposed by Olivier as a framework for assessment in an outcomes-based learning program (Olivier 1998:68). See table 2.5 for an integrated assessment program frame work, as addapted from Olivier (1998:70).

Student feedback on the Bartholomew study was very positive, except for a student that refused to work with the group and produced his own poster for which he received zero marks (McCrorie 1997:372). One concern of these students was that the final assessment at the end of the module was of different format.

2.8.6 Assessment of attitudes

Having established the importance of assessment in a program, one has to address an even more complex issue. This is the assessment of attitudes of medical students and physicians. CBE activities have the objective to address attitudes and behaviour and it is important to assess the achievement of these objectives.

Assessment of attitudes has always been less important than assessment of knowledge, cognitive skills and psychomotor skills. According to ten Cate and De Haes (2000: 40) the reason for this omission is two-fold. The lack of reliable and valid assessment instruments in the affective domain is one reason. The fact that the assessment of beliefs, feelings and intentions implies the imposing of norms, and may thereby cross the borders of the freedom of thought also contributes to the lack of assessment.

In patient care the actual behaviour of the student and doctor is of importance. This behaviour has two components: competence and the willingness to apply the competence. Communication skills are a prerequisite for adequate attitudes (ten Cate & De Haes 2000:41). Whether willingness exists and if communication skills acquired will be applied in practice, is an open question. "Behavior in daily practice" is an operational definition for attitudes (ten Cate & de Haes 2000:40).

If we refrain from assessing the affective domain, it supports the view that the demonstration of the correct attitude is not valued highly from an educational point. It is known that students will not learn "what you expect but what you inspect" (Hart, 1998).

Formative assessment could be a more appropriate type of assessment for attitudes. Summative assessment with the aim to produce a module mark and to decide if students have mastered enough competencies to proceed to a next level is possibly not the best method to assess attitudes and behaviour. The compilation of a portfolio can assist in assessing attitudes and behaviour.

If the assessment of attitudes is supposed to have summative consequences, like withholding students' further education, valid and reliable instruments and procedures are necessary. Behavioural assessment measures may include observation by tutors, nursing personnel, patients and simulated patients. To reliably assess actual behaviour, repeated observations are necessary. This fits better with the definition of formative assessment.

Assessments of attitude should be arranged to take place early in the curriculum. If, however, the assessments are done too early, it may imply that teaching of attitudes could not affect later performance. It is also important to realize that actual behaviour in patient care differs from behaviour in simulated patient contacts (ten Cate & de Haas 2000). Proof could not be found in the literature that attitudes could actually be taught. Service-learning has a small positive effect on outcomes like reduced stereo typing, interpersonal skills, social responsibility and sense of commitment to future services (Eyler 2000:1).

Assessment can either have a potent, beneficial influence on a student's professional attitude and personal development, or may be seriously inhibiting and stultifying, not only during the period of formal training, but also throughout the career of the professional (Engel 2000:237).

2.9 INFLUENCE OF CONFOUNDING VARIABLES LIKE GENDER, AGE AND LANGUAGE ON ATTITUDES AND OPINIONS OF STUDENTS

Confounding variables like gender, age and language have an influence on student attitudes and opinion. In a study reported by Kasselbaum, Szenas and Schuchert (1996: 198) the relative predictive influence of selected demographics, structural, attitudinal and educational variables on the career choices of medical school graduates were shown using logistic regression analysis. Plans to pursue certification in Family Medicine or an unspecified general career could be predicted with moderate success while choices of general internal medicine and pediatrics could not be shown. Significant associations were found between the choice of generalist career and demographic factors such as gender, older students, rural home town and early interest in generalist specialties. The attitude favouring helping other people over seeking opportunities for leadership, intellectual challenge or research, the presence of a department of Family Medicine in the medical school and ambulatory care experiences in third and fourth years were all significantly associated with the choice of a generalist career. No association was found

between institutional vision and mission, clinical experience during first and second year of study, or giving preference in admission to students who vowed an interest to generalism and generalist career choice (Kasselbaum et al. 1996:198).

This study implies that student career choice is strengthened by students' interest and experience in family medicine and ambulatory primary care. In a Nepalese study done by Shankar, Mishra and Partha (2002:1) to assess the attitudes of second-year undergraduate students towards transferable skills, they specifically investigated the differences found in gender, nationality and medium of instruction on these attitudes. Students had to rate their own ability in the skills, the importance of the skill in medicine and the influence of integrated teaching on acquiring the skills. Shankar et al. (2002:1) found that, overall, students had a high level of confidence in their own skills, but women rated the importance of information handling and organizational skills higher than men. Organizational skills included time management and planning of tasks. Information handling included utilizing different resources, selecting information and interpreting information. Shankar et al. reported that there was no significant difference between English and other students regarding the importance attached to particular skills. Indian students rated their presentation skills significantly higher compared to the British. Male students rated their presentation skills better than females. Leadership skills and stress management scored the least. There was no difference between the different nationalities as far as influence of integrated teaching on skills were concerned.

As far as gender is concerned females rated the importance of different categories of skills more highly than male students, but they rated their own skills lower than male students. In spite of the fact that women in this study demonstrated lower levels of self-confidence than men, they appeared to achieve results equal or better than male students. This suggests that either the evaluation is defective or their lack of confidence is no barrier to academic achievement (Shankar et al. 2002:6).

2.10 COST OF CBE

One of the issues often raised when CBE is discussed, is the cost involved. The issue of cost of students' projects is also a matter of discussion in a paper written by McCrorie, Harris and Weich (1997). They are of opinion that if

> *...projects are considered to be an integral part of the curriculum and to embody the key principles such as self directed learning, critical appraisal and scientific thinking then they must be paid for out of the teaching budget* (McCrorie, Harris & Weich 1997).

2.11 CONCLUSION

This literature review provides information that explains the need for change in medical education, the challenges for CBE to help achieve the change, and the importance of the research objectives of the MED 113 study.

The MED 113 research objectives include the determination of the worth of CBE to help students integrate theory (knowledge) and practice (skills), and to influence attitude and behaviour (see 1.3.2). This explains why aspects like attitudes and medical humanism were included in this chapter. Determining student opinion on assessment and the learning process in a CBE approach with early exposure to communities is another objective of the research (see 1.3.2). Student opinion on the CBE approach found in literature and the influence of confounding variables were highlighted. Several research reports from different authors and challenges that other universities had to address were discussed to inform the reader about CBE, its objectives and challenges.

Another objective of the study was to determine if early community exposure motivated students and stimulated their enthusiasm towards community-based education and the MED 113 Expo and to determine if the CBE activities in Module 113 had any benefit for

the community and services. This chapter gives perspective as to why the different role-players were included in the samples and what prompted the different variables to be included in the research instruments.

The final objective of the MED 113 research study was to refine the community-based education model in Phase I module MED113 to serve as future reference for development of CBE activities in other modules and phases of Curriculum 2000 (see 1.3.2). Chapter 2 highlights the fact that further structured and documented research will enhance the quality of CBE and the support for this educational approach.

The design and method of the MED 113 research will be discussed in the following chapter.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

The goals and objectives of the study were discussed in Chapter 1 (see 1.3). This chapter will concentrate on the research design and methods. The instrument used will be discussed and its reliability and validity explored. Different types of bias referred to in this study will be discussed.

3.2 STUDY DESIGN

It was a descriptive exploratory study with an analytical component. These study designs often generate questions for further studies as will become evident in the discussion in Chapter 5. This case-study combined a quantitative method and qualitative aspects due to the opportunity for open response in the questionnaires allowing for personal opinion.

3.3 STUDY POPULATION AND TARGET GROUPS

There were three study populations consisting of first-year medical students in the School of Medicine enrolled in Curriculum 2000 in 2001, the Mangaung community and Bloemfontein NGOs. From the community two samples, namely the learners and community health workers were selected.

3.4 SAMPLE

Four samples were selected. The student sample was selected on the basis of them being exposed to CBE in Curriculum 2000. The learners and CHWs were selected because they were involved in CBE activities in Curriculum 2000. The sample of NGOs was

selected because they were involved in CBE and represented the service provider partner referred to in chapter two. In summary these samples consisted of the following:

- First-year Medical students (M.B.Ch.B. I) enrolled in Curriculum 2000 (n=134)
- Learners from Commtech High School (n=31)
- Community Health Workers (CHWs) from MUCPP (n=34)
- Representatives from Bloemfontein services and NGOs (n=6)

3.4.1 Sampling method

The method used to select the samples was a non-random sampling method. The sample method could be described as a purposive method of sampling. This non-random method of sampling aims to sample a group of people or setting with a particular characteristic. It is usually used in qualitative research, but can also be used in order to pilot questionnaires or generate hypotheses. In experimental design it can be used for practical reasons but the results cannot be generalised to the wider population (Bowling, 1997:166).

The student sample included the entire M.B.Ch.B. I class of Curriculum 2000 in 2001. The community and NGO sample consisted of the entire volunteer CHW group that participated in the workshop, the entire learner group that participated in the workshop, and the representatives from the NGOs visited. Community members involved with CBE activities in the MED 113 module were included rather than other community members for the practical reason of easy access. There was an active CHW group functioning at MUCPP and all volunteers from the group were included in the sample. The learners and community health workers were identified for training purposes in the MED 113 CBE module and were the relevant sample with actual exposure to CBE to participate in the research.

3.5 INSTRUMENTS

Questionnaires were developed to identify whether the different components of community-based education, namely the students' educational needs, the participation and needs of the community and the services, were addressed. Relevant questions based on an extensive literature review on community-based education and the needs for change in medical curricula were included in the questionnaire. Questionnaires are attached as appendices 2 (student questionnaire), 3 (learner questionnaire) and (CHW questionnaire) and 4 (NGO questionnaire). Definitions for each point on the scale were given to prevent any uncertainty amongst subjects. Space was provided for open responses. Anonymity was not maintained, as the consent forms were attached to the questionnaires. Confidentiality was maintained, because only the researcher had access to the individual questionnaires and did not teach in MED 113.

3.5.1 Motivation for the use of the Likert scale

The Likert scale, named after its creator, states the issue or opinion and obtains the respondents' degree of agreement or disagreement. It was used to obtain participants' opinions. The scale was used because of its power and simplicity. The advantages which urged the researcher to use this scale were its economy and ease of composition (Alreck & Settle 1995:116). There was no need for differential weighting and therefore the Likert scale was suitable (Wilken, Hallam & Doggett 1993:25).

3.5.2 Scale values

The conventional Likert scale consists of a 5-point response scale. However, respondents may opt for the middle response category avoiding a decision at either end of the scale. The researcher removed the middle- point, thus forcing the respondent to make a decision one way or the other. It resulted in a four-point Likert scale that was used.

The four scale values were 4=strongly agree, 3=mildly agree, 2=mildly disagree and 1= strongly disagree. The omission of the middle point was not an *ad hoc* decision, but can be motivated from the literature (Bowling 1997:260). This avoided a neutral response (Wilken, Hallam & Doggett 1993:248).

3.5.3 Deficits in the research instrument

Due to time constrains and deadlines that had to be met, the questionnaire was compiled in a short time span. The MED 113 Expo is a once a year event and had the researcher not utilised the opportunity to distribute the questionnaires in time, the research would have had to be postponed to the next year. Retrospectively deficits in the instrument can be identified. Alreck and Settle (1995:119) suggest that if a summated score is to be computed, about half the items should be inclined towards the pro side and half towards the con side to avoid *"yea-sayer or nay-sayer bias"*. The omission of this principle was one of the shortfalls in this study which could be cited as influencing the validity of the study.

Another deficit was the fact that the questionnaires were only available in English and although all respondents could understand English, the ideal is to have the questionnaires available in the language of choice of the respondent.

3.6 RELIABILITY

Reliability refers to the repeatability of a study or the extent to which the measure is consistent and minimises random error (Bowling 1997:391).

Questionnaires were distributed to community health workers by a coordinator and to the learners by their guidance forum teacher. The student questionnaires were distributed by the researcher. The questionnaires of the NGO representatives were completed through telephonic interviews done by the researcher. These questionnaires were completed one

month after the Expo. The student questionnaires were distributed in the class and were handed in almost immediately. This enhanced reliability. The questionnaires were structured by setting specific questions with specific possible responses leaving no room for human error as far as interpretation of responses were concerned. This excluded problems with reliability due to instrumentation error.

3.7 VALIDITY

Validity is the absence of significant bias (Katzenellenbogen, Joubert & Abdool Karim 1999:126). Potential biases and the magnitude of the biases were determined and avoided in the MED 113 study. The direction in which bias influenced the study results will be explored and reported in the remainder of this chapter.

3.7.1 Pilot study

The lack of a pilot study could have influenced validity of the study; however, although no pilot study was done, colleagues and the coordinator of the community health workers helped to validate the questionnaires by determining if ambiguous questions were asked and whether the language used was understandable.

3.7.2 Instrument validity

- External validity refers to the extent to which research findings can be generalized and applied to the wider population of interest (Bowling 1997:393). In the MED 113 study the whole year one M.B.Ch.B. class was included in the study which addressed external validity.
- Internal validity refers to the extent to which the research instrument really measures what it purports to measure (Bowling 1997:393). Internal validity is assigned after an instrument has been tested repeatedly in the population. The MED 113 study instrument was not tested repeatedly, thus internal validity was

not addressed.

3.7.3 Types of bias addressed in the MED 113 study

Only those biases applicable to this research project will be discussed.

3.7.3.1 Selection bias (sampling bias)

Selection bias refers to a systematic effect on the data resulting from the selection of respondents in a manner that deviates from random selection, with the effect that some types of respondents are over- or underrepresented (Alreck & Settle 1995:454). It occurs when the sampling method does not ensure that all members of the population have a calculable chance of being selected into the sample. This sampling procedure may result in a sample that does not represent the population of interest. The fact that a specific school was chosen and that community health workers were invited to participate (self-selection bias) may lead to the effect that only those CHWs positive towards students and the university would volunteer and that that could also reflect in their responses. As far as the student sample was concerned all students, in the first year of study was included in the study, thus selection bias cannot apply.

3.7.3.2 Confounding bias

Confounding variables are those extraneous factors not controlled for (Bowling 1997:387). If samples are not selected randomly, there is a higher risk of confounding bias. Age and sex are but two confounding variables. The learners included in the sample were not controlled for sex and were of more or less the same age group. The effect of sex and first language were investigated using logistic regression (see 3.9).

3.7.3.3 Information bias

The researcher coded all the questionnaires and the Department of Biostatistics, UFS used computer software to do the analysis. Misclassification of data was thus reduced to the minimum and the fact that the questionnaires were self administered, reduced the risk of human error due to interviewer bias (Alreck & Settle 1995:32).

3.7.3.4 Response bias

Response bias is a form of systematic error that is common in self-report measures (Wilken et al. 19993:33). Bias due to the mentality or predisposition of respondents is called response bias (Alreck & Settle 1995:99). Two commonly recognised forms of response bias that were addressed in the MED 113 study are acquiescent and socially desirable response.

- Acquiescence response set (response style bias) refers to the fact that a respondent will rather endorse a statement than disagree with its opposite (Bowling 1997:135). This is also referred to as "yes saying", as referred to earlier in the text (Alreck & Settle 1995:99). The researcher gave a lecture on the use of CBE in Curriculum 2000. The lecture was aimed at motivating students positively towards CBE. This lecture was given a week prior to the research instruments being distributed. There is a possibility of response bias due to this lecture. To try and prevent response bias the researcher informed the students that their cooperation was needed and that an honest response would help to improve the MED 113 module and that flattery would defeat the purpose of the study. Students were also informed that their responses would not be linked to them as individuals. In response bias respondents may have the desire to please the interviewer (Alreck & Settle 1995:454). The questionnaires were self administered and students did not have to face the researcher in an interview.
- Socially desirable response bias concerns the tendency of respondents to be unwilling to report feelings of behaviour which they perceive as socially

undesirable. The research investigates change in attitudes and perceptions to groups other than those of the respondents and could have caused response bias. The risk for response bias was diminished by not having face to face interviews and also by structuring the response in such a way that they could select an undesirable response (Wilken et al. 1993:33).

3.7.3.5 Non-response bias

This form of bias reduces the effective sample size and it can have a systematic effect on the data reducing the validity when those with one type of opinion fail to respond to the survey more often than do others with different opinions (Alreck & Settle 1997:450). A purposeful effort was made to retrieve the questionnaires by tasking specific people with the responsibility to distribute and collect the questionnaires. The high response rate excluded this bias from the study.

3.7.3.6 Hawthorne (guinea pig) effect

This refers to the effect of studies upon those being studied. In this case their knowledge of the study may influence their behaviour (Bowling 1997:137). The respondents may become more interested in the topic, pay more attention to it and become biased. They may even change their behaviour because the researcher is taking an interest in them. In MED 113 this could have played a role due to the fact that the students were briefed on the importance of CBE and the importance of attitudes and behaviour were emphasised. Students also realized that the CBE approach was one of the innovative methods of teaching in Curriculum 2000 and they were one of the first groups enrolled for Curriculum 2000. Another concern is that at the stage that this study was done, various other studies were undertaken on the same group of students in the field of health education. This could have influenced student attitude towards being used as "guinea pigs".

3.8 DATA COLLECTION

On completion of the Expo, three different questionnaires were administered to the research samples. The questionnaires distributed to the students, learners and community health workers were self administered. The community health workers and learners completed the same questionnaire, while the students and NGO representatives each completed different questionnaires. Distribution and completion of the questionnaires were already discussed in 3.6.

The questionnaires were distributed to the students in the week following the Expo and were received within a week. There was thus a very short time lapse between the event tested and the actual gathering of information from the student group. The questionnaires were distributed to the learners and community health workers in the week after the Expo, but some of the responses were only retrieved a month later. The telephonic questionnaires were completed within a month after completion of the Expo.

3.9 DATA ANALYSIS

Data were coded by the researcher and captured and analysed by computer program at the Department of Biostatistics.

The percentages for each response for the different groups were determined and reflected in the results.

Logistic regression was used to assess the differences in student responses (1 and 2 versus 3 and 4) 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 African language) and gender, as well as the interaction between language and gender was performed. For questions 1, 3,

5, 8, 9, 12, 13, 14, 20, 23 (Appendix 3) this analysis, however, could not be performed, due to too few responses. Of the remaining questions only question 11 showed a significant interaction between gender and language groups. Thereafter logistic regression containing 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.

3.10 ETHICS

The proposal was approved by the Ethics Committee of the Faculty of Health Sciences, UFS. Written informed consent was obtained from the students, learners, community and CHWs. Verbal telephonic consent was obtained from the NGOs. Anonymity was not maintained, as the consent forms were attached to the questionnaires. Confidentiality was maintained, because only the researcher had access to the individual questionnaires and does not teach in MED 113. As the student groups were small, there was a possibility to identify certain students. To avoid the problem, the researcher did not allow any access to or discussion of the completed questionnaires.

3.11 CONCLUSION

In this chapter important issues such as reliability, validity and the research method used in the study were highlighted. It is evident that many types of biases can influence the validity of an instrument. The importance of a structured instrument in research and its application in this study was discussed.

Because the study included four different samples and instruments the logistics were complicated. The commitment of all parties involved in the research contributed to a high response rate. The data collected from this study yielded interesting results that will be presented and discussed in the following chapter.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

The results of the study will be presented in this chapter. Tables and graphs will be used to present and illustrate the results. The results will mainly be presented in frequency and percentage tables. Each table or graph of results will be briefly discussed in the text following the table or graph.

4.2 RESULTS OF STUDENT QUESTIONNAIRES

A total of 134 questionnaires were distributed to the first year class of medical students with a response rate of 124/134 (93%).

4.2.1 Student demographics

The class consisted of two different language components, namely the Afrikaans class and the English class, because the media of tuition at the Faculty of Health Sciences are English and Afrikaans. The English class consisted of a mixture of students with English as first language and those with an African language as first language. For this reason the language groups were divided into three groups, viz. the Afrikaans, English and African language speaking groups. Students had to indicate their first language on the questionnaires.

The respondents were also divided into the two gender groups, male and female. The genders differ with regards to language group distribution and the language groups differ regarding the gender distribution. Figures 4.1, 4.2, and 4.3 illustrate the gender and language distribution.

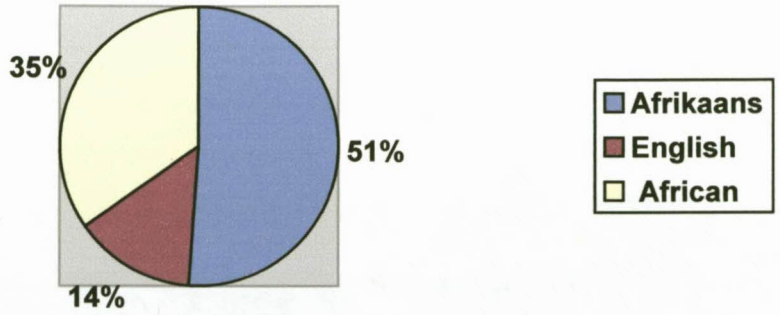


Figure 4.1 Language distribution of male students

Of the males 51% were Afrikaans, 14.3% English and 34.7% had an African language as first language (Figure 4.1).

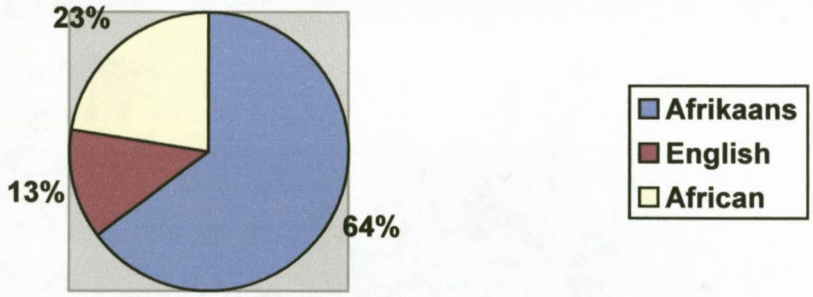


Figure 4.2 Language distribution of female students

As far as the female respondents are concerned, 64.8% were Afrikaans, 12.7% English and 22.5% students had an African language as first language, as indicated in their questionnaires (Figure 4.2).

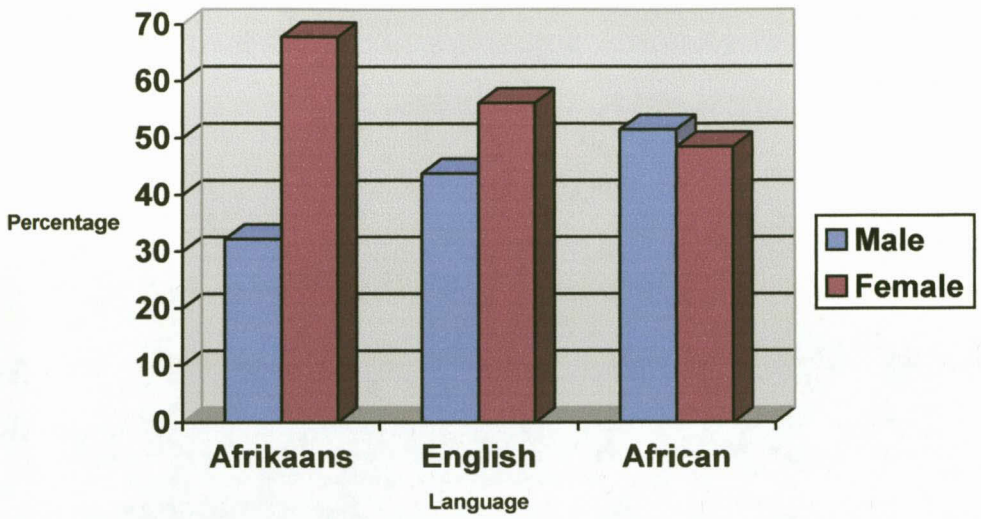


Figure 4.3 Male to female ratio in the different language groups

The breakdown of the gender groups in each language group is illustrated in Figure 4.3. The Afrikaans group has 35.2% male respondents and the English group has 43.8% male respondents. The male component of the African group of students is 51.5%. There thus is a smaller male component in the Afrikaans (35.2%) and English speaking groups (43.8%). Respondents had to indicate whether they were senior students or whether they were post matriculation candidates. There were 21 (17.5%) senior and 99 (82.5%) post matriculation students.

4.2.2 Student responses

The number of responses per item and percentage distribution for each variable in the student questionnaire for the entire class are presented in Table 4.1. The variables are grouped according to knowledge, skills, attitude and behaviour (moulding) and students opinion respectively. A positive response represents the sum of responses 3 and 4.

Table 4.1 Student responses presented as percentage 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 of 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 = highly agree; 3 = mildly agree; 2 = no, mildly disagree; 1 = no, totally disagree.

Table 4.1 (continued): Student responses presented as percentage on a four-point Likert scale

VARIABLES GROUPED ACCORDING TO OBJECTIVES	N FOR ITEMS	PERCENTAGE			
		1*	2*	3*	4*
Attitudes/ behaviour (moulding)					
The assignment urged me to work across cultural borders	124	4.0	21.8	35.5	38.7
The assignment helped me to realize that the community has other needs except 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 urged me to change my attitude towards the community/ organization I was exposed to	122	7.4	14.8	32.0	45.9
The assignment urged me to change my perception about the community/ organization I was exposed to	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 = highly agree; 3 = mildly agree; 2 = no, mildly disagree; 1 = no, totally disagree.

4.2.2.1 Variables referring to knowledge

When looking at 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 to use different resources to do the assignment and 89.5% agreed that the assignment taught them to do health promotion. As far as the integration of theory and practice is concerned, 28.5% highly agreed that they used information obtained in theoretical sessions in practice 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.

4.2.2.2 Variables referring to skills

Various skills variables were included in the questionnaire. 92.7% of students agreed that the assignment taught them to function in a team. When grouping response 3 and 4 together, 85.5% of the students were of the opinion that they were forced to use their communication skills to do the assignment. A total of 77.4% of students responded that they had to collaborate with personnel outside of the University, and 72.6% of the students were of the opinion that they 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 during the assignments were concerned, 77.5% agreed that they had to use leadership skills during the assignment, and 65.3% of respondents were of the opinion that the assignment taught them to budget, although one female respondent remarked in the open responses that she did not handle the budget.

4.2.2.3 Variables referring to attitudes/behaviour (moulding)

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

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

In the open responses the following remarks regarding exposure to different cultures need to be reported. Four Afrikaans students visiting an NGO felt that the community they were exposed to were of the same culture than their own and they did not have the opportunity to work across cultural borders. In the open responses three students requested that a greater variety of communities should be used for the MED 113 assignment.

4.2.2.4 Variables referring to student opinion of the experience in the MED 113 Expo

A total of 93.6% of students highly agreed that the early exposure to the community stimulated their enthusiasm towards their studies. The interest in the topic of the assignment was stimulated in 83.1% of cases. As far as the willingness to participate in an Expo at MUCPP is concerned, 72.6% respondents wanted to participate in an Expo repeated at MUCPP.

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

Four students commented negatively on the organization and timing of the Expo. One student remarked that the organization they visited was not interesting and another felt that he already knew everything on the topic he had to prepare and that it was thus not interesting. Three students commented that they absolutely did not enjoy the visit and

were not received favourably by the community/organization they visited. Two English female students reported their visits as boring and a waste of time.

4.2.2.5 Variables referring to student opinion of the learning process in the MED 113 Expo

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

In the open responses a lack of clear assessment criteria and the fact that all students did not participate in the same activities and thus did not have the same topic for the assignment were perceived to be 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. In Chapter 5 the actions taken and recommendation with regard to the results of the responses on assessment will be discussed (see 5.1.2.3).

4.2.2.6 Student responses by gender and language category

The responses of the students were analysed in specific language and gender categories. The responses according to these categories are depicted in Table 4.2. A positive response represents the sum of responses 3 + 4. The English speaking component of the class could not be included in the analysis because of the small sample size. Only the Afrikaans and African language speaking groups' responses thus are reported.

Table 4.2: Positive student responses (3+4) by language and gender category

VARIABLES GROUPED ACCORDING TO OBJECTIVES	Male		Female	
	Afrikaans	African	Afrikaans	African
Knowledge	**n = 25 •**	**n = 17 •**	**n = 46•**	**n = 16•**
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 of 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%

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

Table 4.2 (continued): Positive student responses (3+4) by language and gender category

VARIABLES GROUPED ACCORDING TO OBJECTIVES	Male		Female	
	Afrikaans	African	Afrikaans	African
Attitudes and behaviour/moulding:	**n = 25 •**	**n = 17 •**	**n = 46•**	**n = 16•**
The assignment urged me to work across cultural borders	64.0%	88.2%	73.9%	50.0%
The assignment helped me to realize that the community has other needs except 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 urged me to change my attitude towards the community/ organization I was exposed to	80.0%	94.1%	70.5%	75.0%
The assignment urged me to change my perception about the community/ organization I was exposed to	88.0%	94.1%	73.9%	68.8%
Student opinion on the experience				
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 /organization was enjoyable	88.0%	100.0%	70.5%	93.8%
I would like to participate in an Expo at MUCPP	72.0%	94.1%	56.5%	87.5%
Student opinion on the learning process				
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%

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

The African language speaking males (100%) and females (100%) were more of the opinion that they had to make use of different resources compared to their Afrikaans speaking counterparts (males 80% and females 89.1%). 100% of African language speaking females indicated that the MED 113 assignment taught them to do health promotion compared to the responses of the Afrikaans females (82.6%), Afrikaans males (92.0%) and African language speaking males (94.1%). Only 50% of African speaking females responded that they had to work across cultural borders compared to African language speaking males (88.2%), Afrikaans females (73.9%) and Afrikaans males (64%). More African speaking males (40%) and females (50%) would prefer to write a test than did the Afrikaans males (24%) and females (21.7%). The four groups were more or less in agreement as to the fairness of the assessment of the assignment, with the responses of the groups being Afrikaans males 52%, Afrikaans females 56.5%, African language speaking males 58.8% and females 56.2%. The Afrikaans females differed in response regarding their willingness to repeat the Expo at MUCPP significantly (56.5%) compared to Afrikaans males (72%), African language speaking males (94.1%) and females (87.5%). On the question whether the visit to the community and organizations was enjoyable, the Afrikaans speaking females (70.5%) also responded less positively than their fellow students whose responses were: Afrikaans males 88%, African language speaking males 100% and African language speaking females 93.8% respectively.

Logistic regression was used to assess the differences in responses between language and gender groups. Table 4.3 illustrates the results with the p-values for significance of language and gender as predictors of positive response in logistic regression.

Table 4.3: P-values for significance of language and gender as predictors of positive response in logistic regression

VARIABLES GROUPED ACCORDING TO OBJECTIVES	Language Afrikaans/African	Gender Male/Female
		P-Value
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 of the University	0.65	**0.02**
The assignment taught me how to budget	0.57	0.14

Table 4.3 (continued): P-values for significance of language and gender as predictors of positive response in logistic regression

VARIABLES GROUPED ACCORDING TO OBJECTIVES	Language Afrikaans/African	Gender Male/Female
	P- value	
Attitudes and behaviour /moulding		
The assignment urged me to work across cultural borders	0.86	0.50
The assignment helped me to realize that the community has other needs except 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 urged me to change my attitude towards the community/organization I was exposed to	0.31	0.13
The assignment urged me to change my perception about the community/organization I was exposed to	1.00	**0.03**
Student opinion on the experience		
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/organization was enjoyable	**0.04**	0.07
I would like to participate in an Expo at MUCPP	**0.01**	0.15
Student opinion on the experience		
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

* the omission of p-value (-) in the table is due to the fact that the model could not be fitted because of uniformity of responses.

4.2.2.6.1 Gender differences

There was a significant difference in response between the gender groups as far as learning to collaborate with personnel outside of the University was concerned ($p < 0.02$). Both Afrikaans (80%) and African (100%) males responded more positively to the question whether they learned to collaborate with personnel outside of the University during the assignment, compared to the Afrikaans (60.9%) and African (75%) females. Three female students reported in the open response on the negative experience they had at an NGO they visited. This will be discussed in the next chapter (see 5.2.1.2).

The genders also differed significantly in response regarding the use of problem-solving skills ($p < 0.02$), as well as to the item that the assignment changed their perception about the community/organization they were exposed to ($p < 0.03$). The response of the male students regarding the use of their problem solving skills were positive for the Afrikaans and African males, being 80% and 100% respectively and that for the Afrikaans and African females, 67.4% and 62.5% respectively. The Afrikaans males (88%) and African males (94.1%) responded more positively to the question if the assignment changed their perception about the community/organization they were exposed to. The positive response of the Afrikaans and African language speaking female students were 73.9% and 68.8% respectively. One student remarked that there was nothing in his/her perception that needed or could change and another student responded that they were exposed to "civilized scholars".

4.2.2.6.2 Language differences

When investigating language there was a significant difference as far as enjoyment of the visit to the community was concerned ($p < 0.04$). The Afrikaans group found the visit to the community and organization less enjoyable than did the African group. In the Afrikaans group the male and female responses were 88% and 70.5% respectively compared to the African male 100% and female group 93.8% (see 5.2.1.2). Two

English female students reported the visits as boring and a waste of time. The language groups also differed significantly in opinion about whether they would like to repeat the Expo at MUCPP ($p < 0.01$). The fact that the Afrikaans group also was less keen to repeat the activity in the township at MUCPP, although they did not respond negatively towards the idea (male 72%, female 56.5%), may reflect the fact that the difference in community settings could have an influence on their responses. The African group were positive about repeating the Expo at MUCPP (male 94.1%, female 87.5%). There was also a significant difference between the language groups regarding the question of rather writing a test as form of assessment than doing the assignment for the EXPO ($p < 0.02$). The African group was more positive regarding writing a test than the Afrikaans students. The respective preference in the Afrikaans group to write a test was male 24%, and female 21.7%, compared to the African students with a male and female response of 40% and 50% respectively. The responses of the students as to whether the assessment was fair, for the Afrikaans group male and female respectively, were 52% and 56.5%, and for the African group 58.8% and 56.2%. Although the students in all language groups were of the opinion that the assessment was fair, as previously mentioned, there was a difference in opinion as to the preferred method of assessment.

In Chapter 5 the actions taken and recommendation with regard to the results of the responses on assessment will be discussed (see 5.2.1.3).

4.3 RESULTS OF COMMUNITY QUESTIONNAIRES

The results of the two community samples, namely the learners of Commtech High School and the Community health workers from MUCPP will be presented.

4.3.1 Learner sample

The learner sample consisted of 31 respondents with a response rate of 24/31 (77%).

4.3.1.1 Language and gender distribution of learners

The learners consisted of four ethnic groups as presented in Figure 4.4 namely Southern Sotho 10 (42%), Tswana 6 (25%), Xhosa 7 (29%) and Zulu 1 (4%). There were 14 (61%) male and 9 (39%) female learners that participated. There was one missing response.

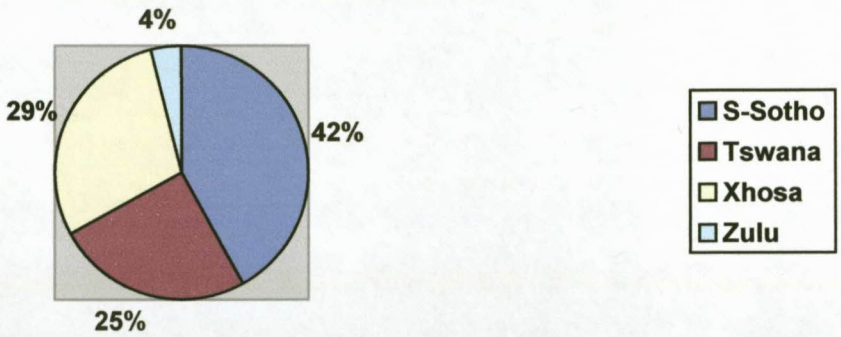


Figure 4.4: Language distribution of learners

4.3.1.2 Learners: Likert scale responses

Table 4.4 summarizes the learners' Likert scale responses.

When grouping scales 3 and 4 together for the responses of the learners, they were extremely positive towards the MED 113 activities. There was a 100% positive response to all the questions.

Table 4.4 : Summary of learners responses (n = 24)

VARIABLES	PERCENTAGE 1*	2*	3*	4*
The workshop served as a learning opportunity	0%	0%	0%	100%
The Expo was enjoyable and served as a learning opportunity	0%	0%	0%	100%
I will participate in a workshop with students if asked again	0%	0%	0%	100%
The exposure I had at the University was informative and may motivate me to further my studies at the University	0%	0%	17%	83%
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 was repeated at MUCPP	0%	0%	8%	92%

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

4.3.1.3 Learners: open responses

The following important qualitative data were obtained. Four learners indicated that they received information about AIDS for the first time. Three learners indicated that the workshop urged them to consider furthering their studies. One learner responded that he /she realized that he/she too could go to university like some of his/her peers he /she interacted with during the workshop. One learner responded by saying his/her self-esteem improved after the workshop and another said that the workshop urged him/her to be more responsible. The value and benefit of the MED 113 Expo for the community will be discussed in Chapter 5 (see 5.2.1.4.2).

4.3.2 Community health worker sample

The Community health worker sample consisted of 31 participants and yielded and a response rate of 30/31 (97%).

4.3.2.1 Community health workers: Likert scale responses

Table 4.5 summarizes the community health workers' responses using a four-point Likert scale.

Table 4.5 Summary of Community health worker responses (n = 30)

VARIABLES	PERCENTAGE 1*	2*	3*	4*
The workshop served as a learning opportunity	0%	0%	6.7%	93.3%
The Expo was enjoyable and served as a learning opportunity	0%	0%	10%	90%
I will participate in a workshop with students if asked again	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%	17.9%	82.1%
I would appreciate it if the Expo was repeated at MUCPP	0%	0%	0%	100%

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

When grouping responses 3 and 4 together for the responses of the community health workers, they had a 100% positive response to all questions. 100% of the community health workers indicated that they would like the Expo to be repeated in the community. This may be due to the fact that part of their function is to do health promotion.

4.3.2.2 Community health workers: open responses

Two community health workers indicated that their skills regarding health promotion and education improved as a result of the workshop and Expo. Three CHWs indicated that they were more motivated towards their field work after the Expo. One CHW indicated that, after the visit to the University, she realized she would like to further her studies to become a nurse.

Community health workers requested that the Expo be repeated in the community for more community members to be exposed to a similar experience.

4.4 NGO REPRESENTATIVE SAMPLE

Seven NGOs were visited, but interviews were only conducted with six representatives.

4.4.1 NGO representatives: Results on Likert scale items

The results of the organizations and NGOs are presented in Table 4.6.

Table 4.6 Summary of NGO representative responses (n = 6)

VARIABLES	PERCENTAGE			
	1*	2*	3*	4*
The student visit served as an opportunity to advertise my organization	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 = highly agree; 3 = mildly agree; 2 = no, mildly disagree; 1 = no, totally disagree.

There was a positive response of the NGOs towards the student visits. When adding the two responses 3 and 4, the representatives responded 100% positively to all variables, except for the question whether the student visit was enjoyable and a teaching opportunity. This was actually a double-barreled question and one does not know whether it was not regarded as a teaching opportunity, or whether it was not enjoyable.

4.4.2 NGO representatives: open responses

In the open responses, two of the NGO representatives requested that students be placed with them for longer periods. One indicated that it would be of more use should the students be placed at a later stage when they could also participate in service rendering. In Chapter 5 the recommendations following on the responses will be discussed.

4.5 CONCLUSION

In general the results of the study indicated that all role players involved in the study benefited from the CBE approach. Results indicated that the knowledge, skills, attitude /behaviour/moulding objectives of the MED 113 EXPO were achieved. Students responded positively to the question relating to the integration of theory and practice and indicated that they made use of different resources to do the MED 113 assignment. A positive response was also given regarding the acquirement of the ability to do health promotion. These variables related to the achievement of the knowledge objective of the study thus indicating that the objective was achieved.

The achievement of the skills objective was measured by the variables referring to teamwork, communication, negotiation, leadership, problem-solving, collaboration and budgeting skills. The results yielded a positive response for all these variables, thus it can be concluded that the skills objective was achieved.

The variables measuring whether the attitude/behaviour/moulding objective was achieved, were the following: working across cultural borders, realizing the different needs of communities, exposure to unknown circumstances, change in attitudes, and perception toward the community and organizations. The results for all these variables were positive, indicating that this objective was achieved.

Determining student opinion on the CBE exposure was another objective of the study of

which the results produced valuable information. In general, student opinion was positive. A slight notion of negativity could be detected in the willingness to do the Expo at MUCPP. The overall response to this question however was positive. Recommendations will be discussed in Chapter 5.

Significant differences were found between language groups regarding the enjoyment of the visits, the willingness to repeat the Expo at MUCPP and the preference of writing a test as assessment method. Significant differences between genders were found regarding the use of problem-solving skills, collaboration with personnel outside of the university and the change in perception about the communities to which the students were exposed.

The findings, conclusions and recommendations of the study will be presented in the next chapter.

CHAPTER 5

FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

Discussion in this chapter will be against the background of the aim and objectives of the study as documented in Chapter 1 (see 1.3.1 and 1.3.2). Results of the research will be discussed in comparison with other studies which may be supporting or contradicting the findings of the MED 113 study (see 2.2.7, 2.8.6 and 2.9). The impact of the study design and method on the research results will be discussed briefly. The value of the study to support and improve CBE as educational approach will also be discussed. Conclusions will be linked to the achievement of the objectives of the study. Recommendations will be discussed as related to those changes which have already been implemented as a result of the findings and those issues identified through the study that need to be addressed in future.

It was difficult to find comparable studies, probably because the field of study is new and most studies done in this regard are more in the form of case studies and qualitative research. Most literature studied indicated the need for change in curricula towards community needs and with the objective to address integration of knowledge, and change in attitudes and behaviour. The desired attitudes and behaviour of future doctors are extensively described in the literature, but only a few articles researching and describing the practical implications could be found.

5.2 SIGNIFICANCE AND VALUE OF THE STUDY

The significance and value of the study must be measured against the achievement of the objectives of the study. In this chapter the five objectives will each be discussed under the subheadings findings (literature and results), conclusion and recommendations. The objectives as stated in Chapter 1 are:

- Objective 1 - to determine if early community exposure as part of the CBE activity in the MED 113 Expo could help the students to integrate theory (knowledge) and practice (skills), and if there was any influence on their attitude and behaviour (moulding);
- Objective 2 - to determine if early community exposure motivated students and stimulated their enthusiasm towards community-based education and the MED 113 Expo;
- Objective 3 - to determine student opinion on the learning process and assessment in the MED 113 Expo;
- Objective 4 - to determine if the CBE activities in Module 113 had any benefit for the community and services;
- Objective 5 - to refine the community-based education model in the Phase 1 module MED113 to serve as future reference for development of CBE activities in other modules and phases of Curriculum 2000 (see 1.3.2).

5.2.1 Value for the students

The effect of the MED 113 Expo on the student is important. To achieve maximum benefit from CBE as educational approach the results regarding student opinion and attitude toward CBE were analysed and reported. Recommendations for action will be discussed in this chapter.

As stated in Chapter 2 (see 2.4) learning takes place in three different domains, namely knowledge, attitudes and skills, also classified by Bloom as the cognitive, affective and psychomotor domains (Forsyth et al.1999:37). The expected benefits and value for the university and students will be discussed referring to these domains.

5.2.1.1 Integration of theory and practice and the influence on attitudes/behaviour (moulding) - Objective 1

As stated in Chapter 1 (see 1.3.2) the first objective was to determine if early community exposure as part of the CBE activity in the MED 113 Expo could help the students to integrate theory (knowledge) and practice (skills), and if there was any influence on their attitude and behaviour (moulding).

5.2.1.1.1 Knowledge

a Findings

To determine if the knowledge objective was achieved in the MED 113 Expo the 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, were measured. In Chapter 4 (see Table 4.1) positive responses for these variables were documented as 89.5%, 90.3% and 75.7% respectively.

In Curriculum 2000 the instruction moved from a curriculum that was primarily lecture- and classroom-based, to one that also includes community-based aspects. The researcher supports van der Vleuten, Dolmans and Scherpbier (2000:248) who question the assumption that teaching is learning and postulate that students learn through knowledge networks (see 2.5.2) . Students are expected to integrate the knowledge attained during lectures and to display the capacity to apply it to problems encountered in professional practice. Life experiences help to establish knowledge networks (see 2.5.2). The MED 113 Expo exposed students to different experiences to help them establish these networks. The teaching in the MED 113 CBE Expo not only provided the required information, but also the environment, situation and context. Students needed to build networks of knowledge. While reflecting (mental exploration of the experience), students use prior knowledge and think critically in the context of real life settings

(Bryant 1993:224) (see 2.5.2). This concept was applied during the MED 113 workshops and in the preparation of the posters and brochures.

b Conclusions

The study results indicate that the MED 113 Expo achieved the knowledge objective of integrating theory and practice.

c Recommendations

Students must apply knowledge to problems and lecturers must create scenarios with the opportunity to integrate theory and skills in real world settings by increasing CBE activities.

5.2.1.1.2 Skills

a Findings

The variables on the research instrument to address the development of skills were: teamwork, the use of communication skills, negotiation skills, leadership skills, problem-solving skills, the need to collaborate with personnel outside of the university and the use of budgeting skills (see 2.4). A Nepalese study measured five categories of skills, namely information handling, organizational skills, information technology skills, self-learning skills and presentation skills (Shankar et al. 2002:3) (see Table 2.4). Students in the MED 113 research reported positively on the utilization of similar transferable skills, namely teamwork (92.7%) , communication skills (85.5%), negotiation skills (77.4%), leadership skills (77.5%), problem solving skills (72.6%), the need to collaborate with personnel outside of the university (77.4%), and the use of budgeting skills (65.3%) (see Table 4.1).

Gender and language had a significant influence on some of the tested variables. With logistic regression analysis, gender had an influence on problem-solving skills ($p = 0.02$), collaboration with personnel outside of the university ($p = 0.02$) and perception about communities ($p = 0.03$). Females utilized their problem-solving skills to a lesser extent than males (see Table 4.3). Females also indicated to a lesser extent that the MED 113 CBE visits changed their perceptions about the communities they visited. Females also collaborated with personnel outside of the university to a lesser extent. A study done by Shankar, Mishra and Partha (2002:6), reported that female students rated the importance of skills more highly, but their own transferable skills lower than did their male counterparts. Female students achieved results equal to or better than male students, but had a lower level of self-confidence than men.

Students worked with authentic problems identified in the workshops with community members and they activated prior knowledge while working on their assignments. Students also engaged in active involvement by entering into debate with pupils and health workers. This active engagement with community members equipped students with a range of competencies that can be applied through out their professional careers (Engel 200:224).

b Conclusions

Magzoub and Schmidt (2000b:410) report on research done by Abel Rahim at Gezira during 1992 on the impact of the method of teaching. The method of this study was discussed in Chapter 2 (see 2.2.7). The MED 113 study cannot be compared with this research, as the MED 113 study evaluated students' own opinion on attitude, knowledge and skills. It was also not a comparable study sample as the MED 113 study involved first-year students whereas the Gezira study concerned interns.

The MED 113 research aimed to determine whether students had achieved some of the skill objectives. Although all the identified skills were addressed in the MED 113,

students were not actually tested on the use of these skills. It could be argued that to do the assignment, and thus obtain a mark for the posters and brochures, these skills had to be used. Some proof exists that students actually utilized the skills as reported by NGO representatives who responded positively in 100% of cases that students utilized their skills to gather information (see Table 4.6).

Skills proven to be utilized in this study were the following: written communication skills (brochures and posters presented at the Expo), negotiation skills, verbal communication, problem solving (conducting workshops and identifying community needs for poster production).

c Recommendations

Skills should be assessed by peers and community members participating in the CBE activities as was the case with the research studies done by Magzoub and Schmidt (2000c:58) and Magzoub et al. (2000:384-5) (see 2.2.6.4). Although peers and community members gave marks for the posters and brochures in the MED 113 Expo, it is recommended that they should also give marks for the actual skills used, e.g. communication skills, leadership skills, etc. The community has a definite role to play in CBE (see 2.2.6.3).

The competencies of students trained in a CBE curriculum should be compared to those of students trained in a traditional curriculum. They should be rated by peers and other medical personnel not involved in the CBE teaching process (see 2.2.7). This recommendation is addressed in the protocol registered for a study to compare the competencies of students rotating in Family Medicine in the final year of the old curriculum and those of the first final year group of Curriculum 2000.

Future research studies should not only rely on student responses, but should include direct observation of the learning processes.

Students should be assessed and rated while actually practising their communication, negotiating, budgeting, leadership and teamwork skills, and peers and community members should participate in the assessment.

An instrument with clear criteria should be developed for community members to assess skills during the CBE activities.

5.2.1.1.3 Attitudes/behaviour (moulding)

a Findings

The desired attitudes and behaviour of future doctors are described in the literature (see 2.5.1) and only a few articles describing research and the practical implications could be found. To address learning in the affective domain and influence attitudes, teaching strategies should be aimed at maximum contact with learning processes that expose students to the said lower order awareness and higher order valuing (Forsyth et al. 1999:39) (see 2.4).

The variables testing student attitudes were those addressing aspects such as working over cultural borders, realizing that communities had other needs than disease, exposure to reality and people with unfamiliar circumstances, change in attitude and a change in perception. The research done in MED 113 addresses learning in the affective domain. The literature review of methods of teaching for the affective domain (see 2.7) was used to determine relevant CBE activities which would address the attitudes of students involved in the MED 113 CBE Expo (see 1.6). In Chapter 4 (see Table 4.1) the attitudinal and behavioural changes perceived by the students are documented.

According to the literature, medical training has to move from a predominantly biomedical model to one that also addresses psychological and social aspects as part of curriculum reform (WFME 1993: 143) (see 2.7.1). Students should be encouraged to

think carefully about complex moral issues with the objective to become practised in moral reasoning (Bryant 1993:224). This principle was implemented in the MED 113 assignment and workshops where students were exposed to and had to debate on issues such as teenage pregnancies and the use of contraceptives by school-going children, AIDS and rape (Appendix 1). Discussing and developing brochures and posters on these issues needed moral reasoning.

Students received lectures on stereotyping and the positive responses of 79% that their perception had changed and 77.9% that their attitudes had changed, were proof that some of the objectives had been addressed in the MED 113 Expo (see Table 4.1). This empowered students for future work in settings where there are cultural, language and other differences that could pose barriers to communication and interpersonal interaction.

The assignment helped 76.0% of students to realize that communities had needs other than disease which had to be addressed by doctors (see Table 4.1). Furthermore 77.9% of respondents indicated that the assignment had caused them to change their attitudes towards the communities and organizations they were exposed to, while 79% reported that the assignment had brought about a change in their perceptions about the mentioned community and organizations. Cross-cultural exposure is part of attitudinal training. The variables for cross-cultural training were exposure to cultural diversity and exposure to communities and unfamiliar circumstances.

When measuring these variables, 85.5% of students indicated that they had been exposed to communities other than those they were used to, and 74.2% responded that they had to work across cultural borders (see Table 4.1).

b Conclusions

The study was an endeavour to prove that the objective of addressing the attitudes and behaviour (moulding) of students was achieved.

It was hoped that negative preconceived attitudes and orientations towards the unknown would be changed by this exposure; however it cannot be concluded that the MED 113 Expo was instrumental in attitudinal change, as the research instrument did not actually test attitudes and no pre- and post- attitude tests were performed. Students only reported a perceived change in attitude. The findings of this study, however, support the idea that CBE activities could influence student attitudes and behaviour towards communities and individuals that are different to those they are used to.

Four students identified the need to be exposed to a greater diversity of cultures, as they had been exposed to a community of their own culture. This identified a deficiency in the CBE activity. In the MED 113 Expo, workshops with learners were only held at the Commtech High School and only a third of the students were exposed to the NGOs.

c Recommendations

Students have to be exposed to a larger variety of communities. This recommendation was implemented the year following the research when all students were exposed to both a workshop with learners of a high school and a visit to an NGO.

Students should be exposed to cultures different from their own. To achieve this, students were placed in mixed culture and language groups for the school and NGO visits. A second school with a different racial and cultural population was also used for workshops with learners in the year following the study.

Another recommendation is that lecturers should continue with workshops which prompt students to think and talk about complex moral issues, like teenage pregnancies, promiscuity, violence against women, HIV and AIDS. These workshops have been built into the course material of MED 113 and are thus not a once-off event. To ensure sustainability of CBE, it should be part of the mission and vision of the institution (see 2.2.6.1). It would be difficult to achieve the outcomes of the course if the CBE activities

were to be omitted.

Instruments to assess actual change in student attitudes and behaviour must be developed and tested. To determine if CBE changes attitude and behaviour pre- and post-testing must be done. The lack of a pre-test is one of the deficits of this study and is presently being addressed in the CHESP research (see 2.2.1).

5.2.1.2 Motivation and enthusiasm of students - Objective 2

Objective 2 was to determine if early community exposure motivated students and stimulated their enthusiasm towards community-based education and the MED 113 Expo. Variables in the MED 113 study that addressed student enthusiasm were measured by the following questions: Did the exposure stimulate enthusiasm? Was the visit enjoyable? Will you like to repeat the Expo at MUCPP? The study results emphasize the importance of monitoring the process and noting potential problems to keep students motivated and to acknowledge the relevance of this method of teaching. These variables were measured and reported on in Chapter 4 (see Table 4.1).

a Findings

Student attitude toward and opinion of CBE activities are very important (see 2.2.6.2). Magzoub and Hamad (2000:241) reported on the struggle for relevance in medical education at the University of Gezira. The Gezira approach was dismissed as unrealistic and unscientific with students calling a series of strikes in the first two years of the programme. One of the first obstacles to overcome in their CBE program was student attitude towards the program.

The role of the student in CBE is discussed in Chapter 2 (see 2.2.6.2.) and reference is made to an article of Magzoub and Schmidt (2000b:410) reporting on research done at Gezira by Abel Rahim during 1992 on the impact of the CBE method of teaching (see

2.2.7). Evaluation done on graduates during their internship by senior physicians who had not been involved in their training, gave the following rating when they compared them to students trained in traditional schools: 50% comparable, 45% better, 5% worse. This evaluation was done using a Likert scale and the competencies evaluated were attitudes, cognitive and clinical skills respectively (Magzoub & Schmidt, 2000b:410). The MED 113 study cannot be compared with this research due to the fact that the MED 113 research evaluated students' own opinions on attitude, knowledge and skills. It was also not a comparable study sample as the MED 113 study concerned first-year students, whereas the Gezira study concerned interns. Although evaluation was done to determine any attitudinal and behavioural changes perceived by the students in the MED 113 study, the aim was to evaluate student opinion to address any deficiencies early in the program and to keep students motivated and positive towards the CBE approach. This could help achieve the final goal set for doctors trained in the community for the community. It was very difficult to find comparable studies, as the field of study is quite new and most studies done in this regard were more in the form of case studies and qualitative research.

A threat of student strikes and negative reaction towards CBE activities as experienced in the Gezira program situation (Magzoub & Hamad 2000: 241) is presently not applicable to our situation. Students responded favourably to the MED 113 Expo. They reported the work to be interesting (83.1%) and responded that the assignment stimulated their enthusiasm (93.6%) (see Table 4.1). The open responses yielded warning signs in that three students commented that they absolutely did not enjoy it and was not received favourably by the community/organization they visited. Two English female students reported the visits as boring and a waste of time (see 4.2.2.4). The students that reported having been received unfavourably, had visited an NGO. Due to mis-communication between the NGO and the University, the NGO had committed itself to an exhibition at the agricultural show coinciding with the student visit. The original coordinator from the NGO had to be involved at the show and did not brief the member of personnel facilitating the student visit on the objectives of the visit. The students complained about the lack of enthusiasm and organization at the NGO. They were subsequently allowed to

develop posters and brochures on one of the needs identified at the workshop by the other students. This did not affect their assessment, but the importance of communication and proper logistics in the planning of CBE activities were emphasized.

There was a significant difference between the language groups on the enjoyment of the visits ($p = 0.04$), the willingness to repeat the Expo at MUCPP ($p = 0.01$) and the wish to rather write a test ($p = 0.02$). The African language speaking students were more willing to repeat the Expo at MUCPP and enjoyed the visits to a greater extent (see Table 4.2).

b Conclusions

The difference between the responses of the language groups could be due to the Mangaung community being of the same culture than the African language speaking group of students resulting in them being more at ease with the visits, and thus also more willing to repeat the Expo at MUCPP. The question arises whether this difference reflected a negative attitude from the Afrikaans group, or whether it was just the result of them being exposed to a totally different situation than what they were used to. Differences in culture and background of students must be respected and reflection sessions after community exposure to discuss student concerns and to defuse conflict and stress are essential.

c Recommendations

CBE orientation, reflection and feedback sessions should be structured and fixed to ensure that students are clear about the expected outcomes of CBE and have the opportunity to discuss and allay anxiety about the activities. Feedback and reflection sessions must identify and address conflict, gaps and problems in good time.

The logistics and organization of visits, workshops and the Expo are important and need special attention. The 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 coordinators and confirmation of logistics, learning objectives of students and other issues of importance are crucial. Students must be briefed about the objectives and outcomes of CBE to understand the need for CBE.

A dedicated person at faculty level should be tasked with the responsibility for the logistics and arrangements of the CBE activities, with clear lines of communication between lecturers and this administrative office. The School of Medicine has appointed a program organizer tasked with these duties.

Partnerships with services and communities should be formed. Responsible co-ordinators should be identified in the services and communities to be involved with the planning and implementation of the planned activities. Proper lines of communication and delegation must be established. MUCPP is such a partnership which already exists. Similar partnerships should be forged with NGOs and other communities.

5.2.1.3 Student opinion on the learning process and assessment - Objective 3

To determine if objective 3 (see 1.3.2) was achieved, student opinion on the learning process and assessment in the MED 113 Expo was measured using the following variables: the assignment stimulated my interest, the Expo was a learning opportunity, the assessment was fair, I would rather write a test (see Table 4.1).

a Findings

Research concludes that there is no doubt that students pay more attention to self-directed learning (SDL) if it is assessed (McCrorie 1997:370). Credits should be given for CBE activities (see 2.8.5). This is one of the reasons why in MED 113 the posters and exhibitions prepared for the Expo contributed 50% to the module mark. It is part of the summative and not formative assessment (see 2.8.1 for a discussion on assessment). The

CBE activities of MED 113 were structured and assessed in the same way as the SDL activities at Bartholomew, referred to in Chapter 2 (see 2.8.5). Following the workshops with learners and community health workers in MED 113, topics were identified to address by means of health information and promotion. Students had to research the topics and produce posters and brochures for the Expo. Although the posters and exhibitions (the products) were assessed, students indicated that they had to utilize different resources (90.3%) to gain the relevant information for their posters and brochures. It forced them to integrate and use knowledge gained from different didactic sessions (75.7%) to produce the final product. Student opinion on the learning process is documented in Table 4.1 with 46% of students reporting the assessment to be unfair, although only 28.7% preferred to rather write a test than do an assignment. The African language speaking students preferred to write a test, (see Table 4.2). The reason for the preference of the African language speaking students to write a test cannot be explained. The fact that 94.3% of the respondents were of the opinion that the Expo was a learning opportunity is also positive. In the open responses a lack of clear assessment criteria and the fact that all students had not participated in the same activities and thus did not have the same topic for the assignment, were perceived to be unfair. The discontent was more with the process of assessment than the method of assessment.

Comparisons can be drawn between the MED 113 CBE module and the Bartholomew project (McCrorie 1997:370). At Bartholomew first-year medical students had to prepare a group poster which was assessed by a panel of experts, much the same as with the group poster prepared for the MED 113 Expo. Students in the Bartholomew study indicated that they had used multiple resources to prepare for their assessment. The normal dependency on lecture notes was absent. They mentioned the use of peers as a resource. The use of multiple resources was one of the variables assessed in the MED 113 study with a positive response of 90.3 %. One concern of the Bartholomew students was that the final assessment at the end of the module was of a different format. At Bartholomew the poster mark contributed only 5% to the final end of year assessment, compared to the 50% contribution of the MED 113 assignment.

b Conclusions

In the classroom the learning stimuli are constant for all students. Lecture content and outcomes are the same for both English and Afrikaans classes and, as far as possible, the lectures are given by the same person. Students have the right to write the papers in either Afrikaans or English and the paper is set in the language of choice. The variability in CBE placements leads to less certainty and homogeneity in learning outcomes (see 2.5.1). In the workshops it may happen that two different groups might identify different health problems. In the one group the problem could be related to an ethical issue, while in the other group it could be due to lack of resources. These two groups will have to research the different problems and may use different strategies to address the identified problems. Even if students are exposed to the same situations, the content of student papers will be less homogeneous than in courses without a community assignment. This aspect was one of the concerns raised by students in the MED 113 study. Students remarked that the fact that they were exposed to different communities and had different topics to address as far as the assignments was concerned, resulted in the assessment not being fair. This concern links with the issue raised by Howard (1993:220), namely that CBE activities differ and for assessment criteria to be fair they have to be well determined communicated and negotiated with students. This is particularly true if the assessment will be on different topics and after different exposures. Criteria and guidelines for assessment in the MED 113 Expo were not communicated to or negotiated with the students. This caused a negative response concerning the fairness of the assessment. In the open responses one student remarked on the fact that she did not appreciate the fact of doing a group assignment. These negative responses need further investigation.

c Recommendations

The group work process must be addressed. The whole group work process in Curriculum 2000 is currently being researched by a PhD student in the Faculty of Health

Sciences. Specific guidelines and contracts for group members involved in group assignments, must be negotiated.

Assessment in CBE must be reconsidered and criteria and guidelines developed, involving the students. This was implemented in 2002 and students also participated in negotiating the weighting of the different components of the assignment.

The School of Medicine has also established a task team to address the issue of assessment in Curriculum 2000. The task team will also review assessment in CBE.

5.2.1.4 The benefit for the community - Objective 4

The fourth objective was to determine if the CBE activities in Module 113 had any benefit for the community and services which in this study were represented by community health workers, high school learners and the selected NGOs.

5.2.1.4.1 Value and benefits for the community health workers and learners

a Findings

Chapter 1 gives an overview of the MED 113 CBE module (see 1.6). The workshops held with the learners and the community health workers gave the community the opportunity to voice their needs. The learners were exposed to some students also being from disadvantaged communities themselves, and who had certain obstacles to overcome to be admitted to university. Learners offering mathematics and general sciences as school subjects participated in the workshop. In Chapter 4 learners and community health worker opinion of the MED 113 CBE exposure is reported (see Tables 4.4 and 4.5). The activities motivated the learners to improve their school marks (100%) and exposed them to the University, motivating them to further their studies (100%). The Expo also provided health education and promotion to these community members.

In the questionnaire 100% of the learners and CHWs reported that they had enjoyed the Expo and perceived it as a learning opportunity. The perceived benefit contributed to the positive response and the willingness to participate in CBE activities again in future. Data were obtained from open responses. Four learners received information about AIDS for the first time during the Expo. The workshop urged three learners to consider furthering their studies, while one learner realized that he too could go to university like some of his peers he interacted with during the workshop. The workshop improved the self-esteem of one of the learners and another was urged to take more responsibility (see 4.3.1). One CHW indicated that she would like to further her studies to become a nurse, while two others indicated that their skills regarding health promotion and education had improved and three others indicated that they were more motivated towards their field work after the Expo (see 4.3.2). Community members requested for the Expo to be repeated in the community for more community members to be exposed to a similar experience.

b Conclusions

Participation and ownership contribute to positive involvement. In a study done at Gezira University (Magzoub & Hamad 2000: 241) community involvement and commitment were a problem (see 2.2.6.3). To prevent this problem in the MED 113 Expo, both learners and community health workers participated actively in workshops by identifying health needs for the students to address in their assignments. The head master and guidance forum teacher of the Commtech High School helped to identify the sample of learners suitable to participate in the research and also attended the health Expo with their learners. Learners and community health workers assessed the posters and brochures. The mark they allocated contributed to the formative assessment and was reported to the students, but did not contribute to summative assessment and thus the module mark. This involved the community with the CBE learning process.

The impact and application of CBE as measured in a study by Magzoub and Schmidt

(2000c:58) were discussed in Chapter 2 (see 2.2.7). Apart from community satisfaction, the variables leadership skills, community interaction (communication) and student interest were also measured in the mentioned study. This project evaluated community satisfaction by means of process evaluation and not outcome evaluation. Although similar variables were measured in the MED 113 study, the two studies are not comparable. The MED 113 research was not done to determine the competency of the students as far as communication skills, leadership skills, and participation were concerned, but to determine the utilization of these skills to achieve their course objective namely the development of posters and brochures. The one major deficit in both the MED 113 study and the Gezira study was the lack of a control sample group where teaching methods did not include CBE and PBL

c Recommendations

Community members must not be passive recipients of CBE, but must be actively involved in the process from planning to implementation. Communities are already involved in the planning of activities in order for them to take ownership and share responsibility.

The Expo at MUCPP should be compulsory in the MED 113 module to ensure maximum benefit for the whole community.

5.2.1.4.2 Value and benefit for the NGOs

a Findings

The participating non-governmental organizations had the advantage that their services were made known and future doctors were sensitized about the special needs of the communities served by these organizations.

The University of Connecticut School of Medicine in the USA (Magzoub et al. 2000: 384-5) did a similar study addressing community agency satisfaction. Third-year medical students were exposed to community agencies which included public schools, rehabilitation services, home care units, and substance abuse programs . These agencies can be compared to the NGOs visited by our MED 113 students. The study is briefly discussed in Chapter 2 (see 2.2.6.4). Although the samples and exposures are comparable to the MED 113 study, the instruments tested different issues. The MED 113 Expo tested community satisfaction and not student competency. Service agency and NGO attitudes towards students were extremely positive in both the USA and the MED 113 study (see Table 4.6). Projects like these also demonstrate to communities that there are and in future will be physicians who are responsive to their needs and who care about their problems (Magzoub et al. 2000 : 384-5).

The MED 113 students were favourably received in the communities and by the NGOs and there was a 100% positive response on future participation from the NGOs. They also felt that the exposure advertised their institutions (100%). NGOs also experienced the CBE activities as positive as far as teaching and learning were concerned. It was seen as an opportunity to teach students (82.4%). Students were reported to utilize the learning opportunity (100%) and their skills to obtain information (100%) (see Table 4.6).

In the open responses two of the NGO representatives requested students to be placed there for longer periods. One representative indicated that it would be of more use, should the students be placed at a later stage when they could also participate in service rendering.

b Conclusions

Placement of and exposure of students to the NGOs benefited both the students and NGOs. These placements served to build bridges indicating to the community that

universities and future professionals are sensitive to the needs of the communities they must serve.

c Recommendations

A recommendation already implemented is senior students being placed at NGOs for longer periods. Students are now placed at NGOs during their third year of study for at least six days from 08:00 – 12:00. Although they do not render clinical services at this stage, this placement is a response to student requests to be placed in CBE settings at a more senior level.

Another recommendation has a bearing on the students' request to be involved in service rendering. This request will be addressed during phase III of Curriculum 2000, that is in study years four and five.

5.2.1.5 Refinement of the CBE model - Objective 5

Refining the community-based education model in module MED113 to serve as reference for other CBE modules and phases of Curriculum 2000 was the fifth objective.

a Findings

The MED 113 Expo addressed the following three important aspects of CBE referred to in the literature (Zlotkowski 1999:96) (see 2.2.3), namely:

- Linking theory to practice: Students receive lectures on communication skills and cultural sensitivity. In MED 113 students actually put the theory into practice by engaging in workshops with community members from different cultures. Communication skills and working across cultural borders are put to the test in these workshops.

- Development of moral values: Students visiting Hospice, APD (the association for people with disabilities) and other NGOs are confronted with specific challenges, which takes the teaching of ethical issues out of the classroom into the community. Issues like AIDS, drug abuse, violence and rape are but a few examples of contentious issues discussed.
- Conveying health promotion messages to the community: Students had to display the ability to convey information they studied at university level to the community at lower educational levels. The need of the community for health education would convince the students of the academic integrity of the CBE activity.

The variables of learning to do health promotion, realizing that the community had other problems than disease that had to be addressed, and the integration of theory and practice were addressed with the questionnaire (see 4.2.2.1). A positive response on the aspects of health education (89.5%), community problems (96%), and integration of theory and practice (75.7%) (see Table 4.1) indicated that the MED 113 Expo was an example of a CBE program that fitted the CBE rationale and taxonomy. Lecturers planning CBE programs could thus learn and benefit from this experience. Using the taxonomy model for CBE of Magzoub and Schmidt (2000a :103) different CBE activities can be classified into different categories (see Figure 2.1).

b Conclusions

The Gezira study (Magzoub & Schmidt 2000c: 55) highlights the need to develop and evaluate a model for CBE. They maintain that it would help to develop a guide for valid student assessment and programme evaluation, it would help rid CBE of the criticisms that it is a "soft science" not based on "scientific grounds" (see 2.2.4). Finally, it could enhance the sharing of experiences between similar programmes and open avenues for comparative research which is very important to establish CBE as a scientific, valid innovative method of education. Lessons learned and recommendations emerging from the MED 113 CBE study could serve as motivation to research and formulate a CBE

model for Curriculum 2000. Policies and partnerships already exist which can enhance the process (see 2.3.6).

CBE has arrived relatively recently on the undergraduate teaching scene and still has to argue for its existence, fight for resources and be seen to deliver in order to survive. CBE lecturers thus have the incentive to address these fundamental questions of defining and assessing desirable outcomes of medical education, evidence-based education and professionalisation (Murray 1999:800).

As stated in Chapter 2 (see 2.2.2), Foos and Hatcher (1999:46) highlighted the need to display evidence of teaching and learning as well as planning, monitoring and course revision to gain faculty support for CBE as instructional approach. The MED 113 research indicated that the CBE helped to integrate theory and practice and addressed student attitudes towards the community; therefore, we can assume that teaching and learning took place in the MED 113 CBE activity. Again it is important to note that the deficit of not having a pre- and post-test and relying only on student opinion should be addressed in future studies. The research in MED 113 monitored the process of CBE to identify the deficits in the CBE approach and refine the program activities for future implementation.

c Recommendations

The MED 113 Expo results and model must be presented to lecturers in the Faculty of Health Sciences and published as a case study to motivate other lecturers.

The study has been presented at different forums and workshops and an article has been submitted and is awaiting approval.

5.3 LIMITATIONS OF THE STUDY

It was a quantitative study with opportunity for open response in the questionnaires, allowing for personal opinion. This was not sufficient to label the research as a combination of quantitative and qualitative methods. This is one of the deficits of the study, because researching the affective domain actually needs a more qualitative approach to verify responses. Valuable information was obtained from the open responses, but unfortunately no discussion around the responses was possible.

Another deficit of the study was that no pre-test was done. It thus could not be determined if the exposure had influenced student attitude towards the community, due to the fact that the study did not specifically evaluate attitudes and behaviour. The study only tested student opinion on whether the activity had influenced their attitudes and behaviour.

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

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

a Recommendations

The MED 113 study should be repeated using a qualitative method with focus group

interviews.

The findings of the pre-test and post-test CHESP research which tests similar variables than the MED 113 study must be implemented. After implementation of these findings, the MED 113 research could be repeated using qualitative methods and instruments.

5.4 COST OF CBE EXPO

One of the issues often raised when CBE is discussed is the cost involved. One major cost driver in the MED 113 CBE Expo was the student and community transport. The costs were budgeted for by the Faculty and subsidized by a CHESP grant.

One of the possible problems relating to the fairness of the assessment is the allotted budget to students to complete the assignment. Each group received R100-00 for the assignment. Students who had access to sophisticated technology and additional funds could have been advantaged, because they could have produced better posters and brochures. The fact that groups were not limited to the use of the allotted R100-00 budget could also be the reason that only 65.3% of students responded positively to the question on whether they had learned to budget (see 4.2.2.2). One student responded that she was not involved in the budget. This variable might not warrant reporting in the project, because the students' budgeting skills had no influence on attitudes and behaviour related to communities. The availability of funds, however, could have influenced their opinion on the method of assessment, namely the production of posters and brochures.

Budgetary constraints also deter faculty members from engaging in service learning (Morton & Troppe 1996:21-32). Lack of funding to implement the community service aspect of the service learning curriculum deters faculty members from using this strategy. The major cost involved in the MED 113 CBE module was transport and production of the posters and brochures. Lack of funding reduced the student

involvement at community level and limited the number of posters and brochures that could be produced. It also contributed to the fact that the Expo was not repeated at MUCPP. Students' reluctance to repeat the Expo was thus strengthened by the lack of funding and time from faculty side.

a Recommendations

Students should be limited to the allotted R100-00 budget for the assignments, and assessment criteria should not be influenced by technical appearance, but by content, neatness and aspects not influenced by the availability of funding.

Lack of funding should not deter students from repeating the Expo and a concerted effort should be made to plan an Expo at MUCPP in future.

There must be a specific budget for CBE activities in Curriculum 2000.

5.5 FINAL CONCLUSION

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

The CBE model addressed the students' educational needs and expectations, and early clinical exposure motivated students and stimulated enthusiasm towards Curriculum 2000 and community involvement. The MED 113 Expo had a positive impact on students' attitudes and behaviour towards communities. Community members experienced the Expo as a learning experience and they 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 utilized successfully to influence attitudes and behaviour, but also to acquire knowledge, integrate theory and practice and learn in context.

REFERENCES

Alreck, P.L. & Settle, R.B. (1995). *The Survey Research Handbook.* Boston, United States of America: McGraw-Hill.

Bingle, R.G. & Hatcher, J.A. (1999). Reflections in service learning: Making meaning of experience. In *Service-learning curriculum development workshop.* University of the Free State. March 2001: 26-32.

Bligh, J. & Anderson, M.B. (2000). Medical teachers and evidence. *Medical Education* 34: 162-163.

Boelen, C. (1990). A call for systematic action for changing medical education: Reaction of working partners. *Medical Teacher* 12: 131.

Boelen, C. (1993). The challenge of changing medical education and medical practice. *World Health Forum* 14: 213-216.

Boelen, C. (1999). Adapting health care institutions and medical schools to societies' needs. *Academic Medicine* 74(8): S11-S20.

Bowling, A. (1997). *Research method in health: Investigating health and health services.* Philadelphia: Open University Press.

Bowman, R. (1999). The CRIB: Cradle to Grave Involvement in Rural Communities: local faculty development that matters. Accessed 2003/01/09 http://www.unmc.edu/Community/ ruralmeded/model/medsch/involve.htm

Bryant, J.H. (1993). Educating Tomorrow's Doctor. *World Health Forum* 14:217-230.

CHESP Evaluation Study (2001). Compiled for ERA by Mouton J. South Africa.

Cote, D. J. & Des Marchais, J.E. (2001). Integrating the learning of humanism into the curriculum. In J.E. Des Marchais (Ed.) *Learning to become a physician at Sherbrooke: A full switch to a student-centered MD Program. (179-207).* Maastricht, the Netherlands: Network Publications.

Curtoni, S.E. (1999). Mission of a medical school: A European perspective. *Academic Medicine* 74(8):S31-S37.

Department of Health. (1999). *Health sector strategic framework 1999-2004.* Government Gazette, Pretoria: Government Publishers.

Dixon, A.S., Lam, C.L.K. & Lam, T.P. (2000). Does a brief clerkship change Hong Kong medical students' ideas about general practice? *Medical Education* 34: 339-347.

Dumais, B., Bernier, J.P. & Des Marchais, J.E. (2001). The preclinical training program: orientations, activities, and administration. In J.E. Des Marchais (Ed.) *Learning to become a physician at Sherbrooke: A full switch to a student-centered MD program* (43-78). Maastricht, the Netherlands: Network Publications.

Engel, C. (2000). Assessment of students' progress and achievement. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education:Theory and Practices* (221-240). Maastricht, the Netherlands: Network Publications.

Eyler, J.S. (2000). What do we most need to know about the impact of service-learning on student learning? *MJCSL Special Issue (2000) – Sample Article.* Accessed 2003/01/09. *http://www.umich.edu/~mjcsl/volumes/researchsample.html*

Fear, F.L., Rosaen, C.L., Foster-Fishman, P. & Bawden, R.J. (2001). Outreach as scholarly expression: A faculty perspective. *The Journal of Higher Education Outreach*

and Engagement 2: 21-34.

Foos, C.L. & Hatcher, J.A. (1999). In *Service learning Workshop Curriculum Guide.* Indianapolis:Indiana Campus Compact.

Forsyth, I., Jolliffe, A. & Stevens, D. (2nd ed.) (1999). *Evaluating a course: Practical strategies for teachers, lecturers and trainers.* London: Kogan Page Publishers.

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. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education:Theory and Practice* (11-26). Maastricht, the Netherlands: Network Publications.

Harden, R.M., Sowden, S. & Dunn, W.R. (1984). Educational strategies in curriculum development: The SPICES model. *Medical Education* 18: 284-297.

Hart, I. (1998) AMEE conference key-note speech. (Unpublished).

Howard, J. (1993). Community service learning in the curriculum. *A faculty casebook on community service learning.* Michigan: OCSL Press.

Howe, A. (2002). Twelve tips for community-based medical education. *Medical Teacher* 24 (1):9-12.

Kasselbaum, D.G., Szenas, P.L. & Schuchert, M.K. (1996). Derterminants of the generalist career intentions of 1995 graduating medical students. *Academic Medicine*

71(2): 198-209.

Katzenellenbogen, J.M., Joubert, G. & Abdool Karim, S.S. (Eds.) (1997). *Epidemiology: A Manual for South Africa.* Cape Town: Oxford University Press.

Kellogg Workshop Report (1997). National Conference of South African Network of Community Partnerships in Health Personnel Education. (1997). *Lessons learned.* CBE Conference 14-17 September. Durban.

Lacombe, G. & Des Marchais, J.E. (2001). Teaching-learning clinical skills. In J.E. Des Marchais (Ed.) *Learning to become a physician at Sherbrooke: A full switch to a student-centered MD program* (113-142). Maastricht, the Netherlands: Network Publications.

Leedy, P. (1997). *Practical research: Planning and design.* New Jersey: Prentice Hall.

Magzoub, M. & Hamad, B. (2000). The struggle for relevance in medical education: Experience at the University of Gezira. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (241-250). Maastricht, the Netherlands: Network Publications.

Magzoub, M., Ilyas, M., Lewis, J. & Schmidt, H. (2000). Impact of community-based educational programs (1): Effects on the Community. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (375-388). Maastricht, the Netherlands: Network Publications.

Magzoub, M. & Schmidt, H. (2000a). A taxonomy of community-based education programs. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (103-120). Maastricht, the Netherlands: Network Publications.

Magzoub, M. & Schmidt, H. (2000b). Impact of community-based educational programs on graduates: Recent findings and common problems. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (407-415). Maastricht, the Netherlands: Network Publications.

Magzoub, M. & Schmidt, H. (2000c). Modeling of Community-Based Education. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (53-64). Maastricht, the Netherlands: Network Publications.

Magzoub, M. & Schmidt, H. (2000d). Some principles involved in Community-Based Education. In H. Schmidt, M. Magzoub, G. Feletti, Z. Nooman & P. Vluggen (Eds.) *Handbook of Community-Based Education: Theory and Practice* (27-38). Maastricht, the Netherlands: Network Publications.

Marcus, E.R. (1999). Empathy, humanism and professionalization process of medical education. *Academic Medicine* 77:1211-1215.

Martin, A.M. (1990). What's wrong with my doctor? *Update* June:108-166.

McCrorie, P. (1997). Assessment of self-directed learning. *Advances in Medical Education* (370-373). Dordrecht: Kluwer Academic Publishers.

McCrorie, P., Harris, G. & Welch, S.G. (1997). Projects: Are they worth all the hassle? *Advances in Medical Education* (780-3). Dordrecht: Kluwer Academic Publishers.

Medical and Dental Professions Board. (1999). *Education and training of doctors in South Africa: Undergraduate Medical Education and Training: Guidelines by the Medical and Dental Professions Board,* Pretoria: HPCSA (unpublished).

Metz, J.C.M., Stoelinga, G.B.A., Pels Rijken, E.H. & van den Brand, B.W.M. (1994). *Blueprint 1994: Training of doctors in the Netherlands: Objectives of undergraduate medical education.* Nijmegen, the Netherlands: University Publishers.

Morgan, W. & Streb, M. (2001). Building citizenship: How student voice in service learning develops civic values. *Social Science Quarterly* 82(1) :154-169.

Morton, K. & Troppe, M. (1996). From margin to the mainstream: Campus Compact's project on integrating service with academic study. *Journal of Business Ethics* 15:21-32.

Mouton, J. (2001). *How to succeed in your master's and doctoral studies: A South African guide and resource book.* Pretoria: Van Schaik.

MUCPP Narrative Report (1999). Mangaung University Community Partnership Project. University of the Free State, Bloemfontein: University Publishers.

Murray, E. (1999). Research and development in community-based teaching: Where next? *Medical Education* 33:799-800.

National and Community Service Act of 1990. Public Law 106-70, as amended December 17, 1999.

Olivier, C. (1998). *How to educate and train outcomes-based.* Pretoria: Van Schaik.

Prinsloo, E.A.M., (2003) Community-based education Guideline: Curriculum 2000. School of Medicine, University of the Free State, Bloemfontein.

Schmidt H., Magzoub M., Feletti G., Nooman Z. & Vluggen, P. (Editors) (2000). *Preface: Handbook of Community-Based Education: Theory and Practice* (7-9). Maastricht, the Netherlands: Network Publications

School of Medicine (2000). University of the Free State. *Phase I Guide Curriculum 2000.* Bloemfontein: University Publishers.

Shankar, R.P., Mishra., P. & Partha, P. (2002). Importance of transferable skills in undergraduate medical education. *Medical Education. Online*. 2002: 7:5. Accessed 2003/01/09. URL http://www.med-ed-online.org.

Snadden, D. & Mowat, D. (1995). Community-based curriculum development: What does it really mean? *Medical Teacher* 17(3):297-306.

Ten Cate, Th. J. & De Haes, J.C.J.M. (2000). Summative assessment of medical students in the affective domain. *Medical Teacher* 22(1):40-43.

Van der Vleuten, C.P.M., Dolmans, D.H.J.M. & Scherpbier, A.J.J.A. (2000). The need for evidence in education. *Medical Teacher*, 22(3): 246-250.

Van Rensburg, D. & Van Rensburg, N. (1999). Distribution of human resources. *South African Health Review.* Durban, South Africa: Health Systems Trust. 16:214.

Wilken, D., Hallam, L. & Doggett, M. (1993). *Measures of need and outcome for primary health care*. Oxford: University Press.

WFME (World Federation for Medical Education) & WHO (1995). African Regional Conference on Medical Education: Cape Town Declaration, Cape Town.

WFME (World Federation for Medical Education) (1993). Proceedings of the World Summit on Medical Education: The changing medical profession: Recommendations. Edinburgh. *Medical Education* 28(1):140-9. Oxford: Blackwell Scientific Publications.

WHO (World Health Organization) (1987). Community based education of health

personnel. *Report of a WHO study group: Technical Report Series No. 746*. Geneva, Switzerland.

WHO (World Health Organization) (1994). Final report: Regional consultation on medical education:Training the doctor for the 21 st century. Yaounde, Cameroon.

Xu, G., Hojat, M., Brigham, T.P. and Veloski, J.J. (1999). Factors associated with changing levels of interest in primary care during medical school. *Academic Medicine* 74(9):101-105.

Zlotkowski, E. (1999). Pedagogy and engagement. In R.G. Bingle, R. Games & E.A. Malloy (Eds.) *Colleges and Universities as Citizens* (pp.96-120). Needham Heights, MA: Allyn and Bacon.

APPENDIX 1

TOPICS FOR EXPO POSTERS AND BROCHURES

Health needs identified

Family planning

Sexually transmitted disease

Tuberculosis

Smoking

Depression and suicide

Alcohol abuse

Rape and violence

HIV and AIDS

Road safety

Clean water

Institutions and Non-Governmental Organizations visited

Aurora

Nicro/Nimro

Hospice

Martie du Plessis School for physically disabled children

*Lettie Fouche School for mentally handicapped children

Care Centre for mentally handicapped adults

Association for physically disabled people (APD)

* Lettie Fouche School was omitted from list and student were given an alternative topic (glue sniffing), due to logistical problems during the visit

APPENDIX 2

STUDENT QUESTIONNAIRE

UNIVERSITY OF THE FREE STATE SCHOOL OF MEDICINE

PROJECT _____

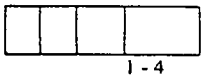
Dear respondent

- You have participated in the MED 113 Health Expo. We are evaluating the Expo as part of a Masters program. I will be thankful if you will participate by completing the following questionnaire.

If you agree to participate a number of questions will be asked. No personal information, for example your name and address will be provided. This means that the information provided could not be linked to you as a participant. Information will be made available to the School of Medicine.

Please note:
As participant you have the right to refuse or discontinue your involvement in the questionnaire without fear of discrimination against you.

PROOF OF PERMISSION
I hereby give permission to be included in the project regarding questionnaires about MED113 Community-based education. I do understand that I have the right to discontinue involvement at any time. SIGNATURE PARTICIPANT DATE _____



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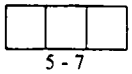
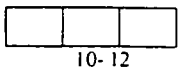


Mother tongue: Afrikaans/English/Other
If other specify _____

Male/Female

Participated in workshop with scholars/healthworker/
Visited organization:



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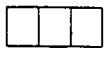

SECTION A

CLIENT SATISFACTION QUESTIONNAIRE Please help us by choosing one of the following responses. We are interested in your honest opinion whether positive or negative. Please answer all of the questions. (Circle the answers)			
1. Are you a senior or post matric student?	1 Senior 2 Post matric		16 - 17
2. I used the information obtained in some of the theoretical sessions in practice to obtain information to develop the poster and brochures Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .		18
3. The early exposure to the community stimulated my enthusiasm. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .		19
4. The assignment I had for the Expo forced me to use my communication skills. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		20
5. The assignment I had for the Expo forced me to use my negotiating skills. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		21
6. The assignment I had for the Expo forced me to use my leadership skills. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		22
7. The assignment I had for the Expo taught me to function in a team.. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		23
8. The assignment I had for the Expo taught me to collaborate with personnel out side of the University. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		24
9. The assignment I had for the Expo forced me to utilize different resources. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		25
10. The assignment I had for the Expo stimulated my interest in the topic I had to prepare for my assignment . Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		26
11. The assignment I had for the Expo urged me to work across cultural borders. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		27

12. The assignment I had for the Expo forced me to use my problem solving skills. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		28
13. The assignment I had for the Expo taught me to do health promotion. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		29
14. The assignment I had for the Expo helped me to realize that the community has other needs except disease which a doctor must address. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		30
15. . The assignment I had for the Expo taught me how to budget. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		31
16. The assignment I had for the Expo exposed me to reality and taught me about people and circumstances that I did not know about. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		32
17. The assignment I had for the Expo urged me to change my attitude towards the community/organization I was exposed to. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		33
18. The assignment I had for the Expo urged me to change my perception about the community/organization I was exposed to. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		34
19. The assessment on the assignment of the Expo was fair. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		35
20. The visit to the community/organization was most enjoyable. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		36
21. I would like to participate in an Expo at MUCPP Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		37
22. I would rather write a test on the topic "health promotion" than do an assignment. Motivate if you marked (4)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		38
23. The Expo was a learning opportunity. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree		39

General remarks.

APPENDIX 3

HIGH SCHOOL LEARNER/ COMMUNITY HEALTHWORKER QUESTIONNAIRE

UNIVERSITY OF THE FREE STATE SCHOOL OF MEDICINE

PROJECT _____

Dear respondent

- You have participated in the MED 113 Health Expo. We are evaluating the Expo as part of a Masters program. I will be thankful if you will participate by completing the following questionnaire.

If you agree to participate a number of questions will be asked. No personal information, for example your name and address will be provided. This means that the information provided could not be linked to you as a participant. Information will be made available to the School of Medicine.

Please note:
As participant you have the right to refuse or discontinue your involvement in the questionnaire without fear of discrimination against you.

PROOF OF PERMISSION
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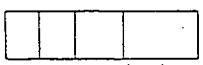
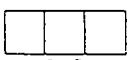


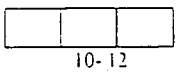
DATE:

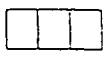


Mother tongue: Afrikaans/English/Other
If other specify _ _____

Male/Female

Scholar/healthworker





QUESTIONNAIRE CODE

SECTION B

(STUDENT/ HEALTHWORKER QUESTIONNAIRE) QUESTIONNAIRE Please help us by choosing one of the following responses. We are interested in your honest opinion whether positive or negative. Please answer all of the questions. (Circle the answers)		
1. Which grade are you in? If you are a health worker ignore the question		16 - 17
2. The workshop served as a learning opportunity for me. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .	18
3. The Expo was enjoyable and served as a learning opportunity. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .	19
4. I will participate in a workshop with students if asked again. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	20
5. The exposure I had at the University was informative and may motivate me to further my studies at the University. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	21
6. The exposure I had at the University was informative and may motivate me to better my school marks. Motivate if you marked (1) If you are a health worker ignore the question	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	22
7. I would appreciate it if the Expo was repeated at MUCPP.	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	23

Open response:

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APPENDIX 4

NGO QUESTIONNAIRE

UNIVERSITY OF THE FREE STATE SCHOOL OF MEDICINE

PROJECT _____

Dear respondent

- You have participated in the MED 113 Health Expo with Medical students We are evaluating the Expo as part of a Masters program. I will be thankful if you will participate by completing the following questionnaire.

If you agree to participate a number of questions will be asked. No personal information. for example your name and address will be provided. This means that the information provided could not be linked to you as a participant. Information will be made available to the School of Medicine.

Please note:
As participant you have the right to refuse or discontinue your involvement in the questionnaire without fear of discrimination against you.

PROOF OF PERMISSION
I hereby give permission to be included in the project regarding questionnaires about MED113 Community-based education. I do understand that I have the right to discontinue involvement at any time. SIGNATURE PARTICIPANT DATE _____

DATE: 1 - 4

5 - 7

Mother tongue: Afrikaans/English/Other
If other specify _____

8-9

Male/Female

Position at organization

10- 12

QUESTIONNAIRE CODE 13- 15

SECTION C

(Organizational representative) QUESTIONNAIRE

Please help us by choosing one of the following responses. We are interested in your honest opinion whether positive or negative. Please answer all of the questions. (Circle the answers)

1. Which organization do you represent?		16 - 17
2. The student visit served as an opportunity for me to advertise my organization. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .	18
3. The student visit was enjoyable and served as an opportunity to teach students. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree .	19
4. I will participate in activities involving student training if asked again. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	20
5. The students used the visit as a learning opportunity. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	21
6. The students used their skills to obtain information. Motivate if you marked (1)	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	22
7. I would appreciate it if we were involved with the Expo again next year.	4 Highly agree. 3 Mildly agree. 2 No, mildly disagree. 1 No, totally disagree	23

Open response:

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