

Design, Implementation and Preliminary Evaluation of an Introductory Service-Learning Elective for Pharmacy Students

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Abstract

Health promotion is an effective strategy to address the increasing global burden of non-communicable diseases. A paradigm shift in pharmacy practice requires pharmacists to be more proactive in dealing with community health issues. In order to prepare pharmacy students for their changing role, a service-learning elective incorporating health promotion, was designed and implemented. This was to provide students the opportunity to achieve the critical cross-field outcomes to which Rhodes University aspires; and to empower the community with knowledge for the prevention and management of priority chronic health conditions in South Africa.

Under supervision, groups of final year pharmacy students researched these health conditions and designed interactive health promotion activities. These were presented at the 2007 Sasol National Festival of Science and Technology (SciFest). A cross-section of children and adults visited the exhibit. Feedback indicated that this interaction between students and the community was effective in raising awareness and providing information on certain health conditions. After SciFest, student perceptions of the elective were evaluated using the small group instructional diagnosis method. Students reported increased knowledge and the development of skills required by practising pharmacists.

Our preliminary conclusion is that the application of service-learning can and does contribute to the achievement of certain critical cross-field outcomes.

Key words: Pharmacy curriculum; Health promotion; Service-learning

Introduction

The key roles of pharmacists are recognised as care givers, decision makers, communicators, managers, teachers and life-long learners (World Health Organisation, hereafter WHO; a). Pharmacists are required to provide their services in response to a dynamic and evolving set of primarily local health care priorities and needs. Pharmacists should also promote the availability of effective health and disease prevention services through their ability to apply population specific data, quality improvement strategies, informatics, and research processes to identify and solve public health problems in addition to developing health policy (Accreditation Council for Pharmacy Education, 2006).

Health promotion is a process which involves the use of a series of strategies that seek to foster conditions that enable populations to be healthy and to make healthy choices (WHO b). Health promotion is an integral component of pharmaceutical care. The Bangkok Charter for Health Promotion in a Globalised World emphasises the process of enabling people to increase control over their health and its determinants, thereby improving their health. Capacity building for policy development, leadership, health promotion practice, knowledge transfer and research, and health literacy are the actions identified by the Charter required to address the determinants of health (WHO c). This paradigm shift in pharmacy practice from product to patient-focus requires that more time be spent talking to and advising patients rather than dispensing medicines. However, lack of time, space, finance, training and perceived conflict between the professional and commercial role of the pharmacist are the main factors hindering pharmacists' involvement in health promotion (Anderson, 2000).

Significant changes in national health care systems worldwide are stimulating a critical examination of the education and training of health professionals (WHO a). This has resulted in recent trends for pharmacy education to be more responsive to pharmacy practice, clinical, political, and economic needs. The International Pharmacy Federation Statement of Policy on Good Pharmacy Practice emphasises that the basic degree course be designed in such a way as to ensure that the newly qualified pharmacists have the necessary knowledge and skills to commence practising competently in a variety of settings, including community and hospital pharmacy, as well as the pharmaceutical industry. The need for a greater focus on student learning, rather than faculty teaching, in addition to the development of problem solving and critical thinking skills in students are emphasised by the Vancouver Consultancy (International Pharmacy Federation). It is therefore imperative that undergraduate pharmacy educators develop curricula relevant to current and future pharmacy practice, and integrate health promotion into pharmaceutical care in order to meet these challenges.

In line with the South African Qualifications Authority (SAQA) Act and Institutional policies, all Rhodes University graduates are expected to achieve critical cross-field outcomes (CCFOs) (Ministry of Education 2004). In order to comply with these requirements as well as the global trends in pharmacy education, service-learning has been integrated as a key component of the Pharmacy Practice and Administration curriculum at Rhodes University. The course satisfies many of the criteria for service-learning identified by the Higher Education Quality Committee (HEQC) (2006b: 24), namely "relevant and meaningful service to the community, enhanced academic learning, purposeful civic learning and structured opportunities for reflection. Service-learning is a credit-bearing educational experience in which students participate in an organized service activity that

meets identified community needs. Through experiential learning students are encouraged to 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” (Bringle & Hatcher, 1996). Equal benefit to both community members and the student is an inherent characteristic of service-learning (Eyler, Giles, 1999).

Non-communicable diseases (NCDs), the major health burden in industrialised and developing countries, are increasing rapidly in the developing countries due to demographic changes, urbanisation and changes in lifestyle (Nissinen, Berrios & Puska, 2001). NCDs are predicted to be the predominant health problem afflicting humankind in all regions of the world in the 21st century (Unwin, 2001). Cardiovascular disease and diabetes are the main NCDs responsible for death and disease worldwide (Alberti, 2001). Data from several countries in Africa provide evidence for high and rising prevalence of these diseases and their risk factors in urban areas. In urban South Africa, the prevalence of diabetes and hypertension in adults is 8% and 33%, respectively (Fourie & Steyn, 1995). It is therefore essential to raise awareness amongst the community and policy-makers of the dangers posed by these conditions (Unwin, 2001).

The Sasol National Festival of Science and Technology (SciFest) is the largest science festival in sub-Saharan Africa. It is held annually in Grahamstown, where Rhodes University is located. It features over 600 events, including popular lectures, interactive exhibitions, workshops, educational theatre, field trips, a soap box derby, laser show, high school quizzes, science olympiads, science shows, tours and even a film festival. Attendance now exceeds 40 000 visitors. “SciFest Africa is dedicated to the promotion of the public awareness of science, technology, engineering and mathematics (STEM) throughout South Africa by means of its internationally acclaimed annual festival and its diverse and ever-expanding range of outreach programmes” (SciFest Africa).

The identification of priority chronic health conditions as the focus for the elective also analyse resulted from the involvement of the faculty members in Grahamstown communities. The two faculty members who facilitated the elective are members of the Pharmacy and Therapeutics Committee (PTC) in the Makana Local Services Area. At these meetings issues related to the use of medicine at public sector health care facilities are discussed. Both faculty members are also involved with a service-learning course, the Community Experience Programme (CEP) which is a key component of the fourth year pharmacy curriculum. The CEP involves students interviewing people with chronic conditions in their homes. It was found from these interviews that a significant proportion of people did not understand what their chronic condition was and they were also unaware of the kinds of lifestyle changes they needed to make in order to manage the chronic conditions. This combination of experiences helped formulate ideas for initiating activities in which Rhodes University could respond to the health care challenges of the community. As a new initiative, the faculty members were interested in identifying applications of service-learning in a rural setting like Grahamstown, in ways that would reciprocally enhance student learning as well as address community needs. Thus the course teachers decided to use the SciFest as a forum to reach out to the community. In response to contextual factors described earlier, members of the Rhodes University’s Faculty of Pharmacy used SciFest as an opportunity for final year pharmacy students to be involved in health promotion and service-learning.

This paper describes the design, implementation and preliminary evaluation of a pharmacy final year elective intended to incorporate health promotion in the current curriculum, in order to provide learning opportunities for future pharmacists to interact with the community. In addition, it was anticipated that SciFest could be used to implement an elective which would raise awareness of chronic health conditions prevalent in South African communities, and would empower people with knowledge for the prevention and management of such conditions. This paper focuses on the preliminary feedback received from the students after participating in the elective. Student feedback was used to determine students' perceptions of service-learning as a teaching and learning method.

Design and implementation of the elective

This elective was designed to provide students with the opportunity to prepare for their professional roles as pharmacists, in the area of health promotion. To achieve this, students were required to understand the challenges and implications of priority chronic health conditions affecting people and society. The elective was intended to demonstrate to students the importance of the pharmacist's role in adopting participatory approaches that enable people to take greater control of their health. The purpose was to empower laypeople with knowledge for the prevention and management of priority chronic health conditions prevalent in South Africa.

Eighteen final year pharmacy students enrolled for this credit-bearing elective. The elective was designed in such a way that the students would have the opportunity to achieve the critical cross-field outcomes such as effective communication; organisation and management of self; team work; the identification and solution of problems; the retrieval, analysis and evaluation of information; cultural sensitivity; and the use of science and technology (Kearney, 2004). The students were divided into seven groups, consisting of two or three students. Each group was required to identify and research one of the seven priority health conditions in South Africa namely, diabetes, hypertension, asthma, epilepsy, tuberculosis, HIV&AIDS and obesity; design health promotion activities to interact with members of the public at SciFest from 21 to 27 March 2007; and write a group research article intended for publication. In addition, each student was required to reflect on their learning experiences and the extent to which the critical cross-field outcomes were achieved.

One of the aims of the course was to enhance students' learning through their research and their having to think of creative and interesting ways in which to educate school children. In addition, we hoped that the children would benefit from the interaction as well. Students were required to design a fun, interactive learning environment to assess SciFest visitors' knowledge and to raise awareness of the priority health conditions. The target group for the material was children aged 10 to 14 years because we are of the opinion that children in this age group form some firm lifestyle opinions. Moreover, it was anticipated that such material would be easily understood by other age groups and laypeople. The students designed an interactive quiz, an interactive model, a poster and an information leaflet about the health condition on which they chose to focus. The materials were exhibited at SciFest. Each day's exhibit focused exclusively on one of the seven conditions identified.

A cross section of children and adults of various ages and from a range of educational, social and cultural backgrounds visited the SciFest exhibit. A total of 1529 individuals participated in the quizzes. Throughout the duration of the Festival a facilitator was available, on site, to interact with

non-English speaking visitors and younger children unable to use the computer quiz. By communicating in isiXhosa¹ and using the interactive models, the facilitator was able to inform the visitors about the health conditions and lifestyle changes required to promote healthy living.

The following is a selection of comments made by visitors to the exhibit and illustrates the lessons learned by some of the people who interacted with the exhibit:

“In our communities we need to be more aware of diseases like TB in order to make us fully aware of what is going on around us. Efforts like this should be appreciated. Well done!! Lots of appreciation.”

“I am very glad that you came up with the survey (quiz). It is fun and very educative, especially with teenagers. We need to be educated so we could abstain. That’s the best solution ever (for HIV).”

“The survey was awesome and just loads of fun to complete. It was a reminder of things we know but sometimes tend to push to the back of our heads.”

“High blood pressure is a dangerous disease especially to people who drink, smoke and don’t even exercise and play some sport.”

“At 62 (years), I’ve learnt something!! Thank you.”

The exhibit was one of six winning exhibits and was judged as “a relevant, simple and thought provoking exhibition, very relevant to visitors both young and old, especially as the diseases are covered in the National Schools Curriculum”².

As this was an innovative teaching method, using some of the principles of service-learning, the lecturers concerned felt it was worth investigating students’ perceptions of how their involvement in SciFest contributed to their learning in the final year Pharmacy course. The following section outlines the research methodology that was employed.

Research Methodology

In this case study we used action research, a form of practitioner research which, it is argued, can lead to improved professional practice (Fien & Hillcoat, 1996, McNiff, Lomax & White, 1997). Kemmis and McTaggart (1982) point out that “the linking of the terms action and research highlights the essential feature of the method: trying out ideas in practice as a means of improvement and as a means of increasing knowledge (1982 in McNiff ,1997:9). Action research operates in cycles or spirals which are based on Lewin’s 1952 model of a spiral of planning, action, observation and reflection (Kember & Kelly 1994). Action research emphasises praxis and is a form of self-reflective enquiry. As such it has the potential to develop “practical theories” (Schartz, 1992) about what works and what does not work in practice or to assess the impact of an educational innovation (Walker,1993), such as the service-learning component of the SciFest elective.

¹ One of the predominant local languages in Eastern Cape, South Africa

² Comments made by the SciFest 2007 judges.

Action researchers are interested in describing, interpreting and explaining events while at the same time seeking to change them for the better (McNiff 1997 citing Bassey, 1995, McKernan, 1991). Reflective thinking and reflexivity are thus key notions for achieving the aims of action research (McKernan, 1991).

The purpose of this action research project was thus to understand better how the teaching method of service-learning did or did not work. This critical understanding could then be used to inform future curriculum development in the Pharmacy course and to improve the future professional practice of pharmacy educators. Finally, through publication, the findings of the research project could potentially contribute to knowledge in wider educational situations (McNiff 1997:16).

Data gathering/ SGID

After SciFest, the pharmacy lecturers involved with the elective met with staff members from the Centre for Higher Education Teaching, Learning and Research (CHETLR) at Rhodes University. After discussion, it was decided to use small group instructional diagnosis (SGID) to collect student feedback. This is a method developed by Dr Joseph Clark of the University of Washington (1982). Since the late 1980's SGIDs have been used at a range of higher education institutions (Floren & Smuts). In an SGID use is made of small group facilitated discussion for gathering evaluation data from students for a lecturer/s on various aspects of course design or teaching. The intention was to gather data on the action which could be used in subsequent cycles for improving the teaching and developing ideas to strengthen the course design. At the same time, it was hoped that the SGID would facilitate students' reflection on their own learning, thus contributing to their developing meta-cognitive understandings of their learning processes. Finally, we hoped that the SGID would enhance the communication between the lecturers and the students about the teaching and learning processes.

Research collaboration between Pharmacy lecturers and CHETLR staff formed what McNiff calls "critical communities of people" (1997:84). Prior to the SGID, questions were chosen by the CHETLR staff and the lecturers. In this paper we will focus on student responses to the following two questions:

- 1. What do you think you learned from being involved in this elective?*
- 2. What suggestions do you have for ways in which this elective could be improved in future?*

Another important reason for involving CHETLR staff in the data collection process was to counter the possible effects of unequal power relations between lecturers and students (McNiff, 1997). The pharmacy lecturers were not present when the SGID was facilitated by the CHETLR staff so the data collected would not be influenced. Students were thus not constrained by the presence of their lecturers. The students were told clearly that the purpose of the SGID was to gather constructive and useful feedback on their learning experiences during the SciFest elective, while at the same time giving them an opportunity to reflect on their own learning processes. The eighteen students were divided into small groups, where each group discussed the questions and tried to reach some points of consensus. A plenary discussion was held during which the groups reported on their discussion and the CHETLR facilitator probed students' opinions on issues and clarified possible misunderstandings. As reported by Floren (1999) "SGID is a participative and consultative intervention, with a clear and simple structure that asks students to give their opinions in an open

and fair forum". After the session, a report was prepared. A meeting was held between the CHELTR staff and the lecturers to discuss students' responses to the questions in order to facilitate reflection on the data and to decide how the action could be changed in future action research cycles.

All eighteen students were present at the focus group discussion. A summary of the student feedback is analysed and discussed in the following section.

Data Analysis and Discussion

Feedback from students regarding what they learnt:

It was clear from the students' responses to the first question that they all believe that they learned a lot from the SciFest experience and that the elective thus far had been a worthwhile experience for them. The students reported that they benefited by gaining knowledge and developing skills that they would one day use as practising pharmacists. Our students identified several skills that were enhanced as well as qualities developed as a result of their participation in the elective. These were: communication, team work, creativity, access, retrieval and dissemination of information, time and personal management and organisation. The elective enabled students to interact with individuals of different ages and a range of cultural, educational and socioeconomic backgrounds. This interaction enhanced their social and interpersonal skills. This is consistent with the findings of Kearney (2004) who showed that service-learning contributed to the attainment of a broad range of professional practice-based outcomes in pharmacy education, making the students more aware of the needs of populations and ethical issues in the public arena. Similarly, Jarvis, James, Giles & Turner (2004) found that service-learning enhanced general abilities essential for competent pharmacy practice, specifically communication, social and contextual awareness, as well as social responsibility and interaction.

The benefits students derive from the inclusion of service-learning in academic health care programmes are well-documented (see Brush, Markert & Lazarus 2006; Burrows, Chauvin, Lazarus & Chehardy, 1999, Drab, Lamsam, Connor, de Young, Steinmetz & Herbert, 2004; Elam, Hafferty, Messmer, Blue, Flipse, Lazarus & Chauvin, 2004, Jarvis *et al.* 2004; Kearney 2004, Roos, Temane, Davis, Prinsloo, Kritzinger, Naudé & Wessels, 2005 and Spiezio, Baker & Boland 2005). These authors have shown that involvement of students in service-learning community projects made a difference to the students, both in terms of personal and key skills development. According to Burrows *et al.* (1999), the increased community contact of medical students during service-learning had a positive short-term impact on those students, including helping them to learn to deal with cultural diversity, to develop a deeper understanding of community issues and to improve their interpersonal skills. Similarly, Jarvis *et al.* (2004) found that a well-designed service-learning programme provides pharmacy students with experiences that prepare them to be competent health care practitioners in an era of increasing diversity.

Roos *et al.* (2005) showed that students develop respect for cultural and language diversity as a result of their involvement in service-learning community-based interventions. In our context the students reported that they greatly improved their communication skills as a result of their participation in the elective. The students learned not only how to access relevant materials in different ways but also a number of skills necessary for communicating with their audiences. They learned how to design and make effective posters, prepare PowerPoint presentations (including a

pre-intervention quiz, an intervention and a post-intervention quiz), build models and where necessary, use an interpreter to ask members of the public questions and convey information. The students also reported that they learned how to identify target audiences and to cater for specific audiences by preparing materials to suit the needs of the audience. Thus the students became more aware of language diversity; the importance of non-verbal communication and the need to adapt communication styles and media to suit the audience. These findings are consistent with those of Drab *et al's.*(2004), who found that students develop communication skills by presenting a topic to the community health forum, and giving presentations to patients and the interdisciplinary care team. Similarly, Sedlak, Doheny, Panthofer & Anaya (2003) found that American students experience enhancement of communication skills and they strengthened their critical-thinking abilities in addition to the development of civic responsibilities. They also developed a sense of caring for others as a benefit derived from service-learning. Sedak *et al.*, (2003) identified other added values and meaning to both students' learning experience and to the recipients of their caring. These were: a sense of personal satisfaction; professional growth and increased awareness of unmet health needs in communities.

In line with the findings of Roos *et al.* (2005), our students found that the elective provided an opportunity for them to develop their creativity, adaptability and flexibility as well as problem solving skills as they were often required to deal with the unexpected and "to think on their feet". The students reported that they found the elective especially rewarding as they were given the opportunity to be creative.

In addition to personal development and improvement of interpersonal skills, the students reported that they learned more because they had to explain complex concepts in a way that was understandable to laypeople or children. Not only did they enhance their own understanding of concepts but it was also generally a rewarding experience for them to share their knowledge. The students were acting much like teachers do when addressing 'novices'. As Northedge (2003: 26) explains, "The teacher 'coaches' by reframing ideas that emerge within the group, to make them work within the terms of the specialist discourse. Of course, the teacher also serves as a live model of how the discourse is spoken. By seizing on an issue and analysing it in the students' presence, the teacher shows how thoughts are composed and arguments developed to meet the needs of the moment". This aspect is referred to by Boyer (HEQC 2006a: 12) as the 'scholarship of teaching' within the broader framework of the 'scholarship of engagement'. Here the distinctive roles of lecturer and student become more nuanced, as members of the community and academia form a learning community.

Roos *et al.* (2005) and Sedlak *et al.* (2003) argue for the inclusion of service-learning in the curriculum as it enables students to acquire necessary 'soft skills' such as empathy, respect for diversity and altruism that cannot be learned in the traditional classroom setting. Drab *et al.* (2004) recommend the inclusion of service-learning early in the development of healthcare professionals because it enables students to learn respect and caring, in addition to high level professional knowledge. Moreover, service-learning has the potential to enhance personal and social development; interpersonal skills, civic responsibility; knowledge and acceptance of racial and cultural diversity and enhanced cognitive complexity.

Improved teamwork was another outcome that was highlighted by our students. They reported that they not only learned how to work well in teams but also enjoyed and benefited from the experience. In the small groups clear definition of each member's role, as well as the common goal for each group, were highlighted as factors that made group work enjoyable and enhanced the sense of satisfaction and unity in the class. Roos *et al.* (2005) found that team work is most likely to be successful when people realise that it does not put other people under pressure. In this study, the fact that the different groups were working towards a common goal rather than competing against each other perhaps helped to alleviate the pressures arising from student workloads and time constraints.

As observed by Poulin, Kauffman and Silver (2006), our students felt challenged, empowered and supported as they participated in the elective. The students acknowledged and appreciated the input of their lecturers and were motivated by the fact that the lecturers valued their input. As Roos *et al.* (2005) previously reported, open dialogue between students and lecturers encourages a process of interactive reflective learning. In this case the fact that students perceived the SciFest elective lecturers as "open, flexible and understanding" encouraged and facilitated the students' professional development.

One of the perceived constraints of this elective was the short time available for the design and preparation of the health promotion materials to be exhibited at SciFest. It is encouraging that the students identified this as an incentive to improve their personal organisation and time management skills. The time constraints demanded that they all worked hard and therefore their time management skills were developed.

Although it is clear from the discussion above that the service-learning component of this elective was beneficial in terms of student learning and particularly their attainment of critical cross-field outcomes, there are also challenges which had to be faced by both students and staff. It is to these that we now turn.

Feedback from students regarding suggestions for ways in which this elective could be improved in future:

The students identified competing demands on their time and an increase in their workload as factors that impacted negatively on their participation in the elective. As alluded to previously, the short time available for preparation of the health promotion materials in readiness for SciFest, as well as competing workloads, meant that some of the activities that, ideally, should have been conducted by students were performed by the lecturers. For example, the lecturers pilot-tested the materials while students were attending lectures or designing models. As a result, some students reported feeling a lack of ownership of the projects.

Integration of service-learning into the curriculum requires that specific time slots are allocated for students to participate in the relevant community activities. On reflection, it is clear that a considerable time commitment, on both the part of the students, as well as the lecturers, is essential in order to maximise the benefits of service-learning. In line with this, some students suggested that the lecturers consider making this elective a double elective³. These findings are consistent

³ This is a one credit-bearing elective. Students suggest we adjust it to a two credit-bearing elective.

with those of other authors. Sedlak *et al.* (2003) found that although service-learning experiences require time to plan and implement, they benefit not only the students, faculty and educational programme but also the community. Jarvis *et al.* (2004) further note that service-learning not only meets the actual needs of the community but also establishes a relationship between the community and the academic institution.

Underestimating children's knowledge was another issue raised by some students. In some cases students found children to be far more knowledgeable than they thought, for example in their understanding of issues pertaining to HIV & AIDS. Some students therefore felt that in future lecturers (and students) should be careful not to under-estimate children.

Limitations of the study

It should be noted that there are several limitations to our findings. These include the small sample size, the short duration of the interaction of students with the community, and the use of student self-assessment as a method of evaluating the impact of service-learning. Additionally, more 'objective' assessment methods and a larger sample size are needed to validate these findings. Furthermore, this is only one study. Although the findings from one case study cannot be generalised to other contexts, McNiff (1997:107) points out that "action research has a body of knowledge constituted of case studies. People tell their stories to other people, and those other people restory the originals into their own stories; the accumulation of individual stories demonstrates a culture of collective learning". Thus, given the benefits identified, we hope that wider participation by faculty members will enable growth and long-term sustainability of such a service-learning initiative. In addition, we hope such findings will encourage discussions of how this elective could be developed and transformed in relation to collaboration with the recipient community.

Conclusions

The HEQC identifies some of the critical factors contributing to the successful implementation of community engagement through service-learning in higher education as reciprocity, collaboration, needs assessment, alignment of service and learning goals, student placement, student orientation, role clarification, reflection and logistics (HEQC 2006a:31-32). Within the constraints of our context, we have incorporated these factors in the design and implementation of this application of service-learning elective.

Changes in pharmacy practice require pharmacists to be more patient-focused and to possess skills and attributes such as compassion, empathy, communication, respect for diversity and health promotion. This service-learning elective was an attempt to use health promotion as a means of training future pharmacists while meeting community needs. Experiential learning is the pedagogical foundation of service-learning (HEQC 2006a:29). The elective used the opportunity provided by SciFest to raise awareness of chronic health conditions, their prevention and management among school children, and the general public attending the exhibit.

This paper has discussed the design, implementation and preliminary evaluation of a service-learning elective and has sought to present evidence for the potential benefits of this learning approach. The elective provided an opportunity for the students to develop a sense of social responsibility, practice and develop communication and interpersonal skills and work in a culturally

diverse environment. Our preliminary findings indicate that this elective was of benefit to both the students and the community and thus fulfils two of the prerequisites for service-learning as stated by Sigmon and Pelletier, 1996 (Simons, Cleary 2006). As highlighted by Kearney (2004), our preliminary conclusions are that service-learning can and does contribute to the achievement of certain critical cross-field outcomes mentioned in the introduction. Thus the elective was effective in achieving several of the critical cross-field outcomes identified by SAQA (Ministry of Education, 2004).

Regarding the benefit of the elective on the community, comments by the SciFest visitors and the judges demonstrate that the elective was effective in raising awareness of the seven chronic health conditions. Visitors appreciated the effort taken to educate and inform them about the chronic conditions; and their management and prevention as well as ways in which they could lead a healthier lifestyle. Changes in lifestyle are documented to have an increasing impact on the improvement of health in many countries (Kirsten). In the running of future courses, we hope the application of service-learning in this elective will move in the community engagement continuum (HEQC 2006b: 21) from its co-operative education leaning, towards a more central placement with the community as equal beneficiary.

“... a single research cycle or loop would only serve to throw up some preliminary meanings and that further evaluation and experimentation are required to exploit the deliberative process fully”(McKernan 1996).

Acknowledgements

The authors would like to thank the following members from Rhodes University: Mrs. S. Abraham, Graphic Services Unit; Dr. K. Bradshaw and Prof. E.P. Wentworth, Computer Science; Mr. M. Mostert, Center for Higher Education, Learning, Teaching and Research; Ms. P. Maseko, School of Languages; and Mrs. K. Benyon. Mr. K. Van Winkel's (St Andrew's College, Grahamstown) contribution is also kindly acknowledged. Ms. A. Fourie and Ms. T. Moss from SciFest are acknowledged for their support. Rhodes University is acknowledged for funding this health promotion intervention.

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