

Article

Evaluation of a service-learning elective as an approach to enhancing the pharmacist's role in health promotion in South Africa

S C Srinivas, W W Wrench

Faculty of Pharmacy, Rhodes University, Grahamstown

S C Srinivas, M Pharm, PhD, PGDHE

W W Wrench, M Pharm

Corresponding author: S Srinivas (s.srinivas@ru.ac.za)

Background. A service-learning (SL) elective offered to final-year pharmacy students was introduced in 2007. The elective demonstrated a holistic approach to creating opportunities for future pharmacists to understand the current needs and future challenges of the burden of disease in developing countries such as South Africa and to foresee their key roles in health promotion.

Methods. The 2007 Sasol National Festival of Science and Technology (SciFest) was chosen as the ideal platform to implement this elective. Evaluation of the elective was carried out in association with the Academic Development Centre using a web-based software tool known as the ADC evaluation assistant (ADCEA). The ADCEA consisted of a 'question bank' from which the course facilitators selected nine ranked closed questions as well as two open-ended questions.

Results. SciFest participation, in the course of the service-learning elective, was acknowledged by students to have prepared them as responsible citizens to undertake health promotion in the public sector healthcare system.

Conclusion. Students' experiences of the learning opportunities provided in the SciFest elective highlight the strengths of this SL programme. The SL elective provided a unique and relevant opportunity to address the health promotion needs of the South African community and potentially enhance human capacity to deliver health promotion in South Africa.

AJHPE 2012;4(2):107-111. DOI:10.7196/AJHPE.108

Introduction

As a developing country, South Africa (SA) faces numerous challenges in implementing equitable access to healthcare for its population. The ratio of healthcare professionals to the population is reported to be 8 doctors, 41 nurses and 3 pharmacists per 10 000 population,¹ which is inadequate to address quality healthcare in terms of treating and managing health problems as well as providing health promotion activities. It is estimated that the disease burden attributed to preventable non-communicable diseases (NCDs) in SA is 21% compared with 25% attributed to poverty-related conditions such as infectious diseases and under-nutrition.² Even though the prevalence of NCDs due to lifestyle changes is almost equal to that of infectious diseases, the resource allocation of the current healthcare system continues to focus on eradication of infectious diseases.³

The document on the assessment of the global burden of disease substantiates that NCDs are the major cause of mortality worldwide and are expected to increase with time in low- and middle-income countries.⁴ Hence it is imperative that more intensive efforts are undertaken to promote healthy lifestyles⁵ in developing countries such as SA. There is an urgent need to develop simple health promotion techniques to empower communities with knowledge for the prevention and management of chronic health conditions.⁶

Health promotion involves actively engaging in strategies that will ultimately provide opportunities to the population to be healthy and to make healthy choices.⁷ Conventionally, health promotion has been approached as a classroom teaching experience resulting in limited outcomes for students and little or no benefit to the community. This requires a pragmatic change in approaching health promotion in tertiary institutions that would benefit the students and also address the needs of the community. A structured educational approach would provide opportunities for healthcare professionals, especially future pharmacists, in understanding the challenges and implications of chronic health conditions affecting South Africans. It is critical that future pharmacists engage actively in health promotion so that the shift in pharmacy practice from product to patient-focus, which requires that more time be spent talking to and advising patients rather than in dispensing medicines, can be made. Although health promotion is considered important, barriers such as lack of time, space, finance, training and perceived conflict between the professional and commercial role of the pharmacist hinder pharmacists' involvement in health promotion.⁸

SA has experienced a paradigm shift in its educational policy by implementing outcomes-based education,⁹ in place of conventional didactic learning. There has been a concerted effort to introduce the concept of

service learning (SL) in tertiary education institutions to contribute towards local and national developmental needs.^{10,11} Currently SL is recognised as an important pedagogy in higher education¹² which encompasses an instructional method that combines community service with didactic learning. As an instructional practice, SL allows students to be reflective and apply their acquired knowledge in real-life situations.¹³

Many SL activities have been successfully developed for students as a part of their curriculum in healthcare professions such as medicine,^{14,15} dentistry,¹³ nursing,¹⁶ public health¹⁷ and pharmacy.^{18,19} This paper describes the evaluation of a SL elective for final-year pharmacy students, which was incorporated for the first time in the curriculum of the Faculty of Pharmacy at Rhodes University in Grahamstown, South Africa. The 2007 Sasol National Festival of Science and Technology (SciFest) was chosen as the ideal platform to implement this elective. The elective was designed to provide students with the opportunity to prepare for their professional roles as pharmacists in the area of health promotion by raising awareness and providing information on priority health conditions based on local prevalence. Obesity, hypertension, diabetes, asthma, epilepsy, tuberculosis and HIV-AIDS, a combination of five NCDs and two infectious diseases were identified for this elective.

Firstly, students were required to design and develop an interactive computer-based quiz with pre- and post-intervention questions to assess the knowledge of, and also to educate, attendees regarding the prevention and management of a particular identified health condition.²⁰ This was facilitated by conducting workshops with the help of various experts from the Rhodes University Computer Science Department in developing computer-based quizzes. Secondly, interactive models were designed to assist in the understanding of the particular health condition. Thirdly, a visual aid in the form of a poster described the health condition, highlighting key aspects as well as prevention and management. Workshops were organised with the help of experts to facilitate design of posters and interactive models for health promotion. Fourthly, information leaflets in both English and isiXhosa (the chief local indigenous language) were distributed to all attendees to the exhibit, thereby ensuring further dissemination of information on all the identified health conditions. All activities had to be organised within five weeks, which was the time available between the start of the academic term at Rhodes University and the beginning of SciFest. A total of 1 529 learners participated in the quizzes and many more visited the exhibit where they interacted with the students.

Since the elective was newly introduced into the curriculum, it was evaluated by the Academic Development Centre (ADC), Rhodes University, for the effectiveness of the teaching and learning, based on course feedback from students.²¹ The students were also required to further reflect on the critical cross-field outcomes (CCFOs)²² perceived to have been achieved during the course of this elective, in a written portfolio. This paper provides insight into the students' evaluation based on their experiences of the new SL pharmacy elective course that addressed health promotion and how it contributed to their learning and development.

Method

The first evaluation of this elective was carried out in association with the ADC, which used a web-based software tool known as the ADC evaluation

assistant (ADCEA).²³ The ADCEA consists of a 'question bank' from which the course facilitators selected nine ranked closed questions as well as two open-ended questions. An ADC consultant scrutinised these questions which were given to the 18 participating students. Students were required to indicate their response for the ranked closed questions and provide written comments for the two open-ended questions. These responses were captured and analysed by the ADC consultant who provided feedback to the facilitators.

The second evaluation, designed by the course facilitators, required students to address specific criteria in a reflective portfolio. These criteria were based on the CCFOs which are in accordance with the South African Qualifications Authority (SAQA) Act²² and institutional policies at Rhodes University. In their portfolios, students quoted examples to substantiate on the personal development of the following CCFOs during the elective:

- ability to identify and solve problems
- ability to work in a team
- how they organised and managed themselves in a group
- how they collected, analysed and evaluated information
- how they communicated effectively
- how they used science and technology
- how they recognised problem solving contexts
- how they explored effective learning strategies during SciFest
- how SciFest participation prepared them as a responsible citizen
- how SciFest prepared them to be culturally and aesthetically sensitive
- how SciFest provided them with opportunities to explore education and career opportunities
- how SciFest would influence their future behaviour as a pharmacist
- other relevant comments/reflection regarding SciFest.

Results

The students' responses to the nine ranked questions from the ADCEA provided insight as to how they approached and participated in the elective. The evaluation, based on their ranking, is shown in Table 1.

Regarding interest in the topic and extent of effort, 94% of the students indicated that they either 'agreed or strongly agreed' (Table 1) with the statement 'I worked hard preparing for and taking part in SciFest as I found the topic interesting'. This statement also correlated with the open-ended responses, where most students answered positively to the question: 'Do you believe that during your preparation for the SciFest exhibit you put in as much effort as you were able to in your circumstances?' The beneficial experience was elicited by one student, who expressed: 'We put in a lot of effort. But we enjoyed every minute of it and it was great to present our exhibit at SciFest because all our hard work paid off and SciFest patrons enjoyed chatting to us and interacting with our display.'

In response to the second open-ended question, 'List the ways in which, during the SciFest elective, you were given opportunities to take control of your own learning', varied responses were obtained. The issue of 'shared responsibility' between students and facilitators was reflected upon, with some students highlighting it in a positive manner while others highlighting the issue of 'ownership' of the elective being more with the facilitators than the students. Some students discussed how the guided help and advice of the facilitators allowed for these learning opportunities. A student felt that

Table 1. Responses of students to ranked questions

Ranked questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My aim with this elective is to do as little work as possible in order to pass	7 (38%)	7 (38%)	0	2 (11%)	2 (11%)
I did not manage to do any reading or work over and above what was assigned for us by the lecturers	4 (22%)	10 (55%)	1 (5%)	3 (16%)	0
I spent a lot of time searching for extra information for my group's topic for SciFest	0	3 (16%)	1 (5%)	7 (38%)	7 (38%)
I found preparing for and taking part in SciFest boring, so did the bare minimum work for it	10 (55%)	6 (33%)	0	2 (11%)	0
I worked hard preparing for and taking part in SciFest as I found the topic interesting	0	0	1 (5%)	8 (44%)	9 (50%)
In this context I found that working in a group contributed to my learning	1 (5%)	1 (5%)	2 (11%)	4 (22%)	10 (55%)
I generally prefer to work on my own than in a group	3 (16%)	9 (50%)	0	4 (22%)	2 (11%)
Although working in a group was difficult at times, I think I learnt a lot from the experience	1 (5%)	0	0	5 (27%)	12 (66%)
Engaging with the course process for SciFest gave me a feeling of deep personal satisfaction	1 (5%)	2 (11%)	0	9 (50%)	6 (33%)

'the facilitators were open to compromise and they did a lot to help us and make life easier'. Another student suggested that 'more autonomy and a less directed process would be better'. Students highlighted that preparation of posters, quizzes and models contributed to their learning opportunities. In addition, planning, time management, creativity and communicating with members of the public were mentioned as additional opportunities for learning.

The open-ended responses included comments on how working as part of a group was helpful for this elective. One student articulated: 'Working as a group is beneficial as the workload is equally distributed and becomes manageable'. In response to a related ranked question, students either strongly agreed or agreed to 'I found that working in a group contributed to my learning', which was again highlighted by 66% of students who either disagreed or strongly disagreed (Table 1) to the statement: 'I generally prefer to work on my own than in a group'. Although 93% of students either agreed or strongly agreed to 'Although working in a group was difficult at times, I think I learnt a lot from the experience', one student felt hampered by group work. In response to the statement 'Engaging with the course process for SciFest gave me a feeling of deep personal satisfaction', over a third of the students strongly agreed, with an additional 50% agreeing.

The reflective writing of all 18 students included examples to illustrate their experience of the CCFOs during the SL elective. Various examples were quoted to show how the elective helped them identify and solve problems. Although they found it to be a challenging course as an introductory elective without any prior experience to learn from, students quoted examples to show how the elective offered them a chance to be 'creative, original and set the standards'.

The ability to work in a team demonstrated insight into their personal social styles²⁴ which they took into consideration when pooling the strengths of

each member of the group for a common benefit. Students quoted examples of how they took personal responsibilities as well as delegated tasks within the group which involved 'inherent creativity, shared insight, enthusiasm, motivation, and generating ideas for the team to succeed' within the given constraints of time. Time constraints and the difficulty in managing other course requirements while managing SciFest commitments were highlighted by all students.

While reflecting on communication, all students highlighted the challenges they faced in communicating with attendees who visited the exhibit, while responding to questions based on popular myths. For example, some attendees thought that HIV is spread by mosquito bites. Students had to explain that this was not the case, and found it difficult to convince a few attendees. Students also highlighted the effectiveness of their posters on health conditions as useful visual aids, along with interactive models and information leaflets which helped them to communicate effectively with SciFest attendees on health promotion. Communication within their group as well as with the course facilitators and the interactive use of *moodle*, an online learning management system at Rhodes University, were also quoted as facilitating factors for effective communication.

By problem-solving using science and technology, students were able to explore learning strategies. One student articulated how 'the SciFest elective has been fun, competitive, challenging and highly beneficial for the practice of pharmacy and the future profession that lies ahead of me', while another student stated: 'I feel that a major benefit of this elective was that it provided an effective means of enabling me to integrate my theory with practice'. Students also explained how workshops organised with the help of various experts from the Rhodes University Computer Science Department in developing computer-based quizzes and the Graphic Services Unit in designing posters had contributed to enhancing the skills they would need as future pharmacists.

The comments made by students on how SciFest participation prepared them as responsible citizens highlight gaps in health promotion in developing countries, especially in the public sector healthcare system, and also showed how they intend to address these gaps. One student articulated: 'I intend to work in public sector. This corresponds to my belief that access to healthcare is a human right.' Their comments on how SciFest prepared them to be culturally and aesthetically sensitive by 'choosing words carefully so as to avoid making anyone feel uncomfortable', 'understanding cultural myths and being sensitive' and 'using pictures and languages in quizzes appropriate to all cultural groups'. Overall, students were able to articulate why it is important to be open and sensitive to the feelings of other people while fulfilling their roles as future pharmacists.

The evidence of how SciFest contributed to students exploring opportunities in education and careers in areas of health promotion and patient education was evident based on their reflection on the scope of opportunities in health promotion as well as the extent to which it could prove to be satisfying. Their responsibility as future healthcare professionals (HCPs) as well as their newfound confidence in interacting with the community or patients was articulated in their reflection. Aspects such as 'opportunity to do things I have never done before' as well as 'obligations to impart my knowledge to the community' were articulated to demonstrate how this elective provided training and opportunities in developing skills and understanding that are required to practise as a pharmacist.

Discussion

SA is currently experiencing a shortage of HCPs and this situation leads to inequities in healthcare for the majority of the population who are dependent on public sector healthcare facilities. It is evident from the recent WHO release⁴ that health promotion to prevent NCDs has to be considered on par with the prevention and treatment of infectious diseases, as they are expected to increase in the future. This situation requires active health promotion through HCPs who have been trained using SL concepts. This builds on the concept of transforming higher education in SA by training pharmacists who have experienced active learning by responding to local health needs of the community through SL experiences.

SL is an important learning experience and is considered to be the step towards simultaneous learning and teaching for students. SL progresses towards a definitive social change in the form of services provided by the students through their lifelong learning commitment towards community engagement.¹⁷ The SL elective was introduced in 2007 with the intention to create reflective practitioners with key skills to address health promotion. Activities associated with SL are considered diverse in application and essentially incorporate four elements: preparation, action, evaluation and reflection.²⁵ All four elements were incorporated in designing and implementing this elective for final-year students who are in the process of entering the professional arena. During the preparation and action phase students were exposed to concepts of SL and responding to the community's health promotion. During evaluation and reflection students provided feedback on how this learning process facilitated in gaining experience to develop critical cross-field outcomes.

The elective demonstrates a holistic approach in creating opportunities for future pharmacists in understanding the current needs and future

challenges of the burden of disease in developing countries. The guided reflection in the student portfolios, based on experience gained during this activity, results in instilling a sense of civic responsibility with an intention of contributing to health promotion. It also helps in linking service and learning, which is in line with the outcomes of other SL programmes.^{19,26,27}

The students' experiences of the different learning opportunities provided in SciFest highlight the strengths of SL programmes. However, the limited time available for this activity was expressed as a major concern. Similar strengths and concerns in a qualitative evaluation study of dental students were reported.¹³

It is reported that health promotion was introduced into the South African health system in 1990, but research and evaluation in this field have made limited progress. This necessitates immediate action in health promotion education and training.²⁸ Initiating this SL elective provided a unique and relevant opportunity to address this need and eventually develop human capacity that is critical in initiating health promotion in South Africa.

Conclusion

The outcomes of the evaluation of the SL elective reported here demonstrate the value of such a strategy in sensitising future pharmacists to their key role in health promotion to enable their clients to take greater control over the conditions affecting their health.

Acknowledgements. The authors would like to gratefully acknowledge Dr Srinivas Patnala for his assistance in developing and editing the earlier drafts of this manuscript. The authors would also like to thank the following members from Rhodes University: Mrs S Abraham, Graphic Services Unit; Dr K Bradshaw and Professor E P Wentworth, Computer Science; Mr M Mostert, Academic Development Centre; Ms P Maseko, School of Languages; and Mrs K Benyon. M K van Winkel's (St Andrew's College, Grahamstown) contribution is also kindly acknowledged. The 18 final-year students who completed the SciFest elective in 2007 are also acknowledged for their enthusiastic participation. Rhodes University is acknowledged for funding this health promotion intervention.

Conflict of interest: None.

References

1. WHO. Health systems resources, World Health Statistics 2010. http://www.who.int/whosis/whostat/EN_WHS10_Full.pdf (accessed 18 March 2011).
2. Bradshaw D, Groenewald P, Laubscher R, et al. Initial burden of disease estimates for South Africa, 2000. *S Afr Med J* 2003;93(9):682-688.
3. Kruger SH, Puaone T, Senekal M, van der Merwe MT. Obesity in South Africa: Challenges for government and health professionals. *Public Health Nutr* 2005;8(5):491-500.
4. WHO. New study presents state of the world's health. <http://www.who.int/mediacentre/news/notes/2008/np11/en/print.html> (accessed 9 March 2011).
5. Bourne LT, Lambert E, Steyn K. Where does the black population of South Africa stand on the nutrition transition? *Public Health Nutr* 2002;5(1A):157-162.
6. Porter C. Ottawa to Bangkok: Changing health promotion to discourse. *Health Promot Int* 2007;22(1):72-79.
7. The health promoting schools initiative. http://www.unep.org/training/programmes/Instructor%20Version/Part_2/Activities/Interest_Groups/Public_Awareness/Strategies/The_Health_Promoting_Schools_Initiative.pdf (accessed 9 March 2011).
8. Anderson C. Health promotion in community pharmacy: the UK situation. *Patient Educ Couns* 2000;39:285-291.
9. National Qualifications Framework and Curriculum Development (2000). http://www.saga.org.za/structure/nqf/docs/curriculum_dev.pdf (accessed 18 October 2010).
10. Council of Higher Education. Community Engagement, 2004. http://www.che.ac.za/documents/d000081/SA_HE_10years_Nov2004_Chapter7.pdf (accessed 18 October 2010).
11. Osman R, Castle J. Theorising service learning in higher education in South Africa. *Perspectives in Education* 2006;24(3):63-70.

12. Bringle RG, Hatcher JA. Reflection in service learning making meaning of experience. *Educ Horiz* 1999;77(4):179-185.
13. Keselyak NT, Simmer-Beck M, Bray KK, Gadbury-Amyot CC. Evaluation of an academic learning-service course on special needs patients for dental hygiene students: a qualitative study. *J Dent Educ* 2007;71(3):378-392.
14. Brieger WR. Developing service-based teaching in health education for medical students. *Health Educ Monogr* 1978;6(4):345-358.
15. Jones KV, Hsu-Hage BH. Health promotion projects: skill and attitude learning for medical students. *Medical Educ* 1999;33(8):585-591.
16. Reising DL, Shea RA, Allen PN, Laux MM, Hensel D, Watts PA. Using service-learning to develop health promotion and research skills in nursing students. *International Journal of Nursing Education Scholarship* 2008;5(1):29. <http://www.bepress.com/ijnes/vol5/iss1/art29> (accessed 18 October 2010).
17. Cashman SB, Seifer SD. Service-learning an integral part of undergraduate public health. *Am J Prev Med* 2008;35(3):273-278.
18. Sauer BL. Student-directed learning in a community geriatrics advanced pharmacy practice experience. *Am J Pharm Educ* 2006;70(3):54.
19. Brown B, Heaton PC, Wall A. A service-learning elective to promote enhanced understanding of civic, cultural and social issues and health disparities in pharmacy. *Am J Pharm Educ* 2007;71(1):9.
20. Srinivas SC, Wrench W, Karekezi C, Radloff S, Daya S. Obesity: A baseline health promotion intervention of an introductory service-learning course for pharmacy students. *Health SA Gesondheid* 2009;14(1). <http://www.hsag.co.za/index.php/HSAG/article/view/454/434> (accessed 18 October 2010).
21. Karekezi CW, Wrench W, Quinn L, Belluigi D, Srinivas CS. Design, implementation, and preliminary evaluation of an introductory service-learning elective for pharmacy students. *Education for change. Community Service Learning* 2007;11(3):143-156.
22. Ministry of Health. The higher education qualification framework. Pretoria: Department of Education, 2004.
23. ADC Evaluation Assistant. Rhodes University. <http://ea.ru.ac.za/> (accessed 18 October 2010).
24. Rosario KJ. Quick identification of social style, aptitudes, and motivation, 2004. <http://www.keithrosario.com/images/NewSocialStylesWeb.pdf> (accessed 18 October 2010).
25. Geleta NE, Gillam J. An introduction to service learning. In: *Learning to Serve, Serving to Learn: A View from Higher Education*. Salisbury University, 2003. <http://www.servicelearning.org/filemanager/download/111/TECSL%20Chap%201.pdf> (accessed 18 October 2010).
26. Cauley K, Canfield A, Clasen C, et al. Community-campus partnerships for health. *Service learning: integrating student learning and community service. Educ Health* 2001;14(2):173-181.
27. Yoder KM. A framework for service-learning in dental education. *J Dent Educ* 2006;70(2):115-123.
28. Onya H. Health promotion in South Africa. *Promot Educ* 2007;14(4):233-237.