

ORIGINAL RESEARCH

Impact of an interprofessional education program on developing skilled graduates well-equipped to practise in rural and underserved areas

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ABSTRACT

Introduction: Poverty, limited access to resources and a lack of infrastructure characterise the division of rural areas from urban South Africa. Low numbers of social welfare professionals compound the problem. With education linked inextricably in social responsibility, higher education institutions (HEIs) are called upon increasingly to create conditions that encourage students and graduates to practise in more socially responsible ways, involving more than mere disciplinary expertise or technical knowledge, and that consider the problems of rural areas. Use of interprofessional education (IPE) programs, based on teamwork, could enable HEIs to train and guide health sciences students in how best to cooperate with each other and combine their skills to mutual benefit. This would enable them to develop professional skills facilitated by interactive engagement within community settings.

Methods: Referencing experience gained in Australia and elsewhere, the Faculty of Community and Health Sciences (FCHS) at the University of Western Cape (UWC) has developed and applied an IPE program for South Africa. Students were placed in interdisciplinary groups in a rural and underserved municipality of the Western Cape – 17 students participated in a study on the effectiveness of this program. A quantitative self-administered questionnaire, followed by qualitative focus group discussions, established student perceptions of their IPE experience, how the experience influenced their intentions for or against future practice in rural and underserved areas, and their interest in future interprofessional collaboration and practice.

Results: More than 75% of the participating students agreed that they had learnt to develop knowledge base, procedural and healthcare practice presentation skills, along with preparing written community health histories. Student willingness to practise in rural areas was evidenced, citing community- and resource-based factors as determinants; however, concerns that some community



members had 'own agendas' were expressed. Nearly all students highly appreciated their learning and service delivery development, but 47% felt that their educational experience did not go as far as expected. Student concerns were a lack of structured student placement for IPE to occur in the program, as well as limited staff supervision of students.

Conclusions: The UWC FCHS IPE program is evidenced as a valid approach to encouraging health sciences students and graduates to choose to practise in more socially responsible ways. However, improvement of placement and supervision methodology and practice should be explored at faculty level and implemented in future IPE programs.

Key words: community welfare, health science students and graduates, healthcare practice, interactive professionalism, interprofessional education, procedural skills, rural and underserved areas, social responsibility, supervision methodology, well equipped practice.

Introduction

The divide between rural and urban South Africa is indicated by research as characterised by poverty, limited access to resources and a lack of infrastructure in rural areas¹. Workforce shortages can exacerbate this divide necessitating new models of health care that focus on increased collaboration and communication to optimise patient care². Education has been found to impact directly upon society in social development, with education and social responsibility linked inextricably³. As a result of these factors, higher education institutions (HEIs) are being increasingly called upon to ensure that their methods of instruction promote equity, creative thinking, cultural tolerance and commitment to humanity. It thus becomes evident that HEIs need to take responsibility for creating conditions that encourage students and graduates to choose to practise in rural and disadvantaged settings in more socially responsible ways – a responsibility that calls for the acquisition of attributes that go beyond the disciplinary expertise or technical knowledge to prepare graduates as agents of social good⁴.

The Faculty of Community and Health Sciences (FCHS) at the University of the Western Cape (UWC) has, therefore, developed a specialised South African Inter-Professional Education (IPE) program that provides health sciences students with structured learning opportunities that combine service learning with teamwork and reflection. At this

university, IPE occurs when two or more professional disciplines combine in a team whose members learn with, from and about each other and their work, so as to improve collaboration and the quality of care⁵. Collaborative practice is when health workers from different professional backgrounds work together with patients, families, caregivers and communities to deliver the highest quality of care⁶. The program offered required students in the disciplines of Natural Medicine, Physiotherapy and Nursing in their third and fourth years to address collaboratively identified community priorities. These priorities were identified by UWC together with community and health service providers. Students were expected to work in interdisciplinary teams and initiate community interventions for the identified priorities. They were engaged in a process of structured reflection during the IPE course and delivered a presentation to the community at the end of the placement. Students were supervised once a week according to their disciplines by selected academics with the requisite knowledge, skills and experience, as well as by on-site professionals working in the practice settings.

This article reports on an investigation of the perceptions of students in an IPE program experience, and how their perceptions of this experience influenced their intention for future practice within rural South African communities. Conclusions drawn from this investigation are put forward for consideration in the enhancement of future IPE programs and the benefits to be gained from them.



Methods

This study employed a mixed method design approach, utilising a quantitative self-administered questionnaire (SAQ), followed by student qualitative evaluation focus group discussions (FGDs). Data collection and FGDs were conducted by independent researchers with physiotherapy and community development backgrounds respectively, who were trained to gather information on the IPE program in the FCHS at UWC.

The first part of the SAQ was adapted from a University of Tasmania questionnaire for evaluating the experiences of health sciences students in an IPE program^{2,7}. Enquiry into demographic characteristics, students' experiences on placement in a rural area and on supervision was followed by open-ended questions intended to substantiate placement and supervision experiences. The second part of the SAQ enquiry dealt with the interest of students in future interprofessional collaboration and practice in socially disadvantaged areas.

For the FGDs, an interview guide was used adapted from the Community Higher Education Services Partnership Project's *Students focus group schedule*⁸. This guide enquired about the extent to which the students found IPE meaningful, enjoyable, engaging and professional, and whether they considered that it created opportunities both to learn from one another and to develop their skills for future rural practice and engaging with disadvantaged communities.

The SAQ was disseminated among Natural Medicine, Nursing and Physiotherapy students by the independent researchers after completion of their IPE placement in a rural community. Focus group discussions followed for each group. The validity of this study approach was confirmed as follows.

Reliability and validity

The SAQ was first piloted among fourth-year dietetics students, who did not form part of the main study. Following

the pilot group's recommendations, three questions were adjusted to improve clarity of meaning.

Trustworthiness

Focus group discussions were facilitated by an independent researcher and transcribed verbatim by another independent researcher; the transcripts were then re-read by both researchers to verify the exactness of the process.

Data analysis

The Statistical Package for the Social Sciences v20 (SPSS; <http://www.spss.com>) was used to analyse the quantitative data descriptively, utilising percentages to report the data. The open-ended questions were transcribed verbatim. Focus group discussions were recorded, with manual transcription of audio data into text. The content of the transcribed data was read and re-read – and the audio recordings were listened to several times – to familiarise the researchers with their content, as well as to create a better understanding of the data⁹. Themes emerged in this process that formed part of the triangulation of the quantitative data.

Ethics approval

The UWC Senate Research Ethics Committee approved the methodology and ethics of the study (registration no. 10/7/14); participants were informed and signed consent forms for participation. Participants were free to withdraw from the study at any point in the process; they were assured that withdrawal would not influence their marks in any way.

Results

Reporting

The SAQ data is reported on within predetermined categories: demographic characteristics, experiences with an IPE program, and intentions for future practice. Emerging



themes are supported by responses from the open-ended questions and the themes emerging from the FGDs.

Demographic characteristics

From January to May 2011, 23 students were placed in interdisciplinary groups in a rural and underserved municipality of the Western Cape Province of South Africa. Seventeen students consented to participate in this study, of whom 10 were from Natural Medicine, 3 from Physiotherapy and 4 from Nursing; 5 were female and 12 male; ages were between 22 and 35. Thirteen of the total 17 considered they have spent more time in urban areas, whilst four were definitely from rural areas; only 6 of the 17 considered themselves to be of rural origin.

IPE experiences

When asked to state (on a 'disagree/agree' basis) whether, as a result of their IPE program, they were able to develop appropriate knowledge and skills, the majority of students responded positively in all four areas. More than 75% agreed that they had learnt to develop knowledge base, procedural skills, healthcare practice presentation skills and written community health histories (Fig1).

When asked to respond – negatively or positively – to 12 statements on their learning and service delivery experiences, students responded in largely positive way (82% to 100%); the one less positive result related to gaining a deeper understanding of resources and networks required (53%).

Again on a 'disagree/agree' scale the students rated highly their development following IPE placement, yet on the open-ended questions their responses reflected concerns that they felt needed to be addressed. A recurring theme was the 'lack of structure for the placement programme'. Students felt that they had too much freedom to decide on what to do in the community, which could have compromised the quality of learning. Students also expressed a desire to have more interaction between different disciplines, in order to further

entrench interdisciplinary learning. Student comments included:

I would like to remain there long enough to see the effects of treatment and efforts made in health care. (Natural Medicine student, aged 36)

Not well planned from departmental side if it wasn't for our own initiative we would be doing whatever we want most of the time ... (Physiotherapy student, aged 24)

Opportunity to work with others limited, there is need to reorganise placement to suit the aspect of working together ... (Nursing student, aged 34)

More support from CHS [Community Health Sciences] with recourse to make learning easier, change of attitudes towards each other's disciplines (Natural medicine student, aged 22)

... Should have more structure. At times, ... we had to get or plan what we need to do or where to go. Extend the time. I think this is too short to create sustainable projects and to gain trust of the community so that we don't come and make promises and leave. They should not lose hope when we are gone ... (Nursing student, aged 28)

The following comments illustrate that community-based IPE can provide an opportunity to transfer theory into practice and develop of specific professional skills:

... Engaging in the community, having a close experience of the rural culture ... (Nursing student, aged 22)

... The vibe or sense of community is not bad. Everyone always willing to assist and inform us ... (Physiotherapy student, aged 22)

... It was good to see many people with different conditions though it is sad to see sick people but seeing those things that are written in the book in reality helps a lot ... (Natural Medicine student, aged 30)



During the FGDs, the students reported that the IPE experience had enabled them to assess and prioritise the needs of community members, creating an opportunity to learn about other disciplines and compare healthcare approaches. Students realised that they needed to set aside their differences and focus on the needs of others. Student comments included:

... Learning together helped in getting a better understanding of what other health carers do and comparing it with our courses ... (Nursing student, aged 22)

... we got to mix with other students and shared our experiences and knowledge with them ... (Physiotherapy student, aged 23)

... The fact that we are proving that it can be done if we set aside our differences and focus on the needs of patients; we also become more enlightened about how the other disciplines function in the community ... (Natural Medicine student, aged 27)

Supervision experiences

Table 1 illustrates the students' perceptions of the supervision. It was only in the area of supervision experience that students recorded 'disagreements' – in the areas of 'providing students with access to people with a wide range of health problems' (11.8%); 'providing opportunities for continuity of patient care' (17.7%), and 'providing appropriate supervision for project decisions' (11.8%). This could be linked to what some students reported in the open-ended section: that the time provided was not enough, and that the student-to-supervisor ratio was deemed to have been disproportional, at one supervisor to nine students as cited in the FGDs. Students suggested:

Supervision needs to be available throughout the week. One supervisor is not enough for nine students (Physiotherapy student, aged 23)

Supervision to be more regular, not necessarily face to face, daily emails, phone calls can be conducted (Physiotherapy student, aged 26)

Preference for future practice

Figure 1 illustrates the preferred community of practice at the end of the course. The majority of the students (69%) preferred to work in rural-based communities with less than a third of the group preferring to work in urban-based communities.

Further questioning of students in FGDs regarding their motivation for future rural practice elicited information on a number of factors.

Community-based factors

Some students indicated that the need for health promotion in the community and the community's friendliness motivated them to want to practise in the rural areas and to work there in future. Comments included:

... I would want to practice there to make a difference in poverty and unemployment ... (Nursing student, aged 23)

... The little knowledge that the rural communities have about their individual health needs/rights and about health in general ... (Natural Medicine student, age 30)

... Community morals and values are attractive ... (Nursing student, aged 24)

However, some students did not want to return to the same community because there was minimal cooperation from the side of the community. One student said:

... I don't think I would want to go back there because I had a negative experience ... there was a lot of emphasis from the community leader that there was a problem with the children, that they were turning to drugs, yes ... but when we decided on what to do there was lack of interest on his side and he started moving his equipment for building, and now his attention shifted from us to his own business while he is the one who told us to come there because he has a problem ... (Physiotherapy student, aged 22)



Table 1: Students' perceptions of supervision

Supervision experience	Disagree strongly n (%)	Disagree moderately n (%)	Disagree slightly n (%)	Agree slightly n (%)	Agree moderately n (%)	Agree strongly n (%)
Gave adequate help and advice	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (23.5%)	13 (76.5%)
Were approachable	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (11.8%)	15 (88.2%)
Were enthusiastic	0 (0%)	0 (0%)	0 (0%)	1 (5.9%)	3 (17.6%)	13 (76.5%)
Assisted me in identifying my learning needs	0 (0%)	0 (0%)	0 (0%)	1 (5.9%)	2 (11.8%)	14 (82.3%)
Treated me with respect	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (11.8%)	15 (88.2%)
Facilitated a learning environment	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (23.5%)	13 (76.5%)
Gave me sufficient autonomy	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (23.5%)	13 (76.5%)
Gave useful feedback	0 (0%)	0 (0%)	0 (0%)	3 (17.6%)	1 (5.9%)	13 (76.5%)
Were excellent role models	0 (0%)	0 (0%)	0 (0%)	2 (11.8%)	4 (23.5%)	11 (64.7%)
Provided me with access to people with a wide range of health problems	0 (0%)	0 (0%)	2 (11.8%)	3 (17.6%)	2 (11.8%)	10 (58.8%)
Provided me with appropriate project/clinical responsibilities	0 (0%)	0 (0%)	1 (5.9%)	3 (17.6%)	2 (11.8%)	11 (64.7%)
Provided opportunities for continuity of patient care	1 (5.9%)	0 (0%)	2 (11.8%)	6 (35.3%)	2 (11.8%)	6 (35.2%)
Facilitated the development of my decision making about inter-professional practice in health care	1 (5.9%)	1 (5.9%)	1 (5.9%)	3 (17.6%)	3 (17.6%)	8 (47.1%)
Provided appropriate supervision of project decisions	0 (0%)	0 (0%)	2 (11.8%)	3 (17.6%)	1 (5.9%)	11 (64.7%)
Overall my rural placement provided an excellent service-learning experience	1 (5.9%)	1 (5.9%)	1 (5.9%)	6 (35.2%)	0 (0%)	8 (47.1%)

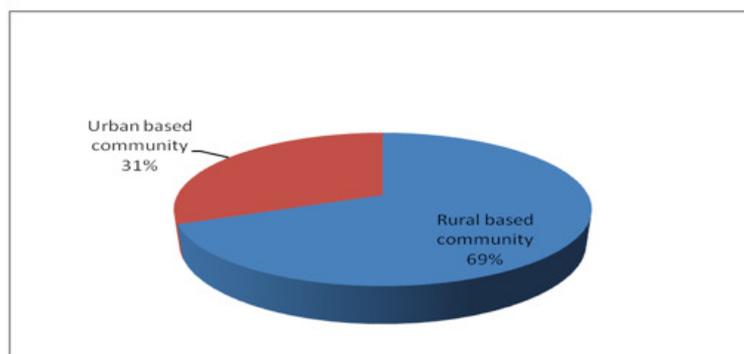


Figure 1: Preferred community of practice after the interprofessional education placement



Resource-based factors

Some students want to work in rural areas in order to address the problem of limited resources. Students' comments included:

... The lack of resources, the lack of socially positive interaction of the youth, the overcrowding of the health facilities touched me, I would like to go and be part of some solution ... (Nursing student, aged 23)

... The fact that the clinics and other institutions are understaffed, physios go there only once a month, my contribution there would be good ... (Physiotherapy student, aged 22)

Other students also felt that their personal needs, such as their desire to earn more money, would not be satisfied in a rural setting. One student said:

I think as a student it was easier because it wasn't your money and even in the community we didn't ask them for money they volunteered to pay, so after qualifying it is not going to be easy like when you leave this university and you have loans to pay. Because at the end of the day the clinic will not run free, you will have to pay them to treat them because they are not going to pay you for the drugs medicine so from that aspect I wouldn't go but if it was sponsored by government then I would go ... (Natural Medicine student, aged 27)

Other factors

A desire to give back to the community was evident among students who were from rural areas. Their desire was also prompted by the community health personnel with whom they worked:

..... for me I actually come from the rural community ... And I knew what to expect when I get there so I will definitely go back there to give back to my community ... (Nursing student, aged 23)

... and also the way they teach they, are patient, they are diligent, and even if it goes chaotic they have time to yes to

tell you don't do it like that do it like this, yes they have time ... (Nursing student, aged 24)

It was clear that rural practice was an opportunity for students to practise different skills (100%), and that people in the rural areas were generally friendly. Furthermore students indicated what they enjoyed doing in the rural areas and what would attract them back there (94.1%). They felt that they would have more autonomy to practise in a rural area rather than in an urban area. They did not think that rural practice was difficult (70.6%).

Discussion

Main view

In general, the participating students highly commended the IPE program for its approach to developing self-growth, collaboration and learning, opportunities not often found in discipline-specific (silo) professional approaches. The IPE experience enabled them to assess needs and prioritise activities, creating an opportunity to learn about other disciplines and compare alternative patient care approaches. It was clear that the students valued the opportunity to practise in a rural area, as this exposed them to conditions and situations not often experienced in other placements. These skills are fostered within placement contexts specifically selected to facilitate its development. The students, however, expressed concern that the IPE program could and should be more effective. Among their recurring themes was the 'lack of structure for the placement programme' and 'the inadequate supervision they received'. While the former theme could be attributed to the dynamic context within communities, the latter theme requires further investigation.

Indicators

In their systematic literature review, Barr et al. highlighted the fact that indicators such as professional activities, self-assessment of skills, levels of knowledge, attitudes to team functions, and effects on practice with a professional partner, are used to evaluate the impact of IPE¹⁰. Their systematic



review also noted positive changes towards the development of knowledge base and procedural skills. However, these authors advised that it was still difficult to evaluate the impact of IPE on knowledge and skills. In Canada, concerns similar to those expressed in this study were that students engaged in IPE were dissatisfied regarding the meeting of their expectations in their first exposure to IPE¹¹, unless supervision was adequate and the supervisors were knowledgeable about IPE philosophy.

Change of attitude towards each other's profession and acquisition of interprofessional skills, such as teamwork, was a major component of IPE¹², which was also affirmed in the present study (Table 2). Stone reported that students that they had developed a clearer understanding of the roles of other professions and achievement of effectiveness through IPE¹³. This result affirms McNair et al's assertion that IPE enables students to move from a one-discipline approach of practice to one that is similar to the environment in which they are meant to work¹⁴.

Supervision

Significant disagreement levels with the effectiveness of supervision are apparent (Table 3). Students felt inadequately served in areas where they understood that supervisors were supposed to provide opportunities, responsibilities and an environment for learning within the community. The quality of the relationship between supervisors and students is arguably the single most important factor for effective supervision¹⁵. Interprofessional supervision creates opportunities for learning and practice development, although difficulties can occur due to differences of status, values, language, theoretical orientation and approaches to practice¹⁶.

Bailey identified the need for supervision as maximising opportunities from learning gained on 'off the job' courses for bringing about changes in effectiveness at work¹⁷. Since interprofessional working and learning are concerned with placing the client at the centre of care, with an aim of promoting collaboration across professions, supervision in the practice setting becomes of paramount importance, especially

at the undergraduate level of health learning¹⁸. This form of supervision is what these authors refer to as occasions when a health or social care professional facilitates interprofessional learning and supervises and assesses students in the practice setting. Undergraduate health supervision is vital, but is probably the least investigated, discussed and developed. Researchers warn that, with time, inadequacy and a disproportional supervisor-to-student ratio, important aspects of supervision such as 'feedback' would be compromised¹⁵. Therefore, the current UWC study investigated the important components of supervision, such as supervision ratios and relationships, feedback response and time/attention allocated to students.

The supervision role

Interprofessional education is still a new philosophy of teaching. The role of supervisors has been challenged by an apparent inability to integrate discipline specific objectives with those of IPE. Such alignment could be built on the specific discipline's competence commonalities between the objectives of students and the supervisor¹⁹. In this regard, clinical facilitators and lecturers need to be trained to clearly understand each other's professional roles and responsibilities, and thus being in a position to translate that understanding in clear and empirical ways for the professional disciplines that inform the team of students²⁰. This was affirmed by students in this study, who called for faculty understanding of the philosophy of IPE.

Conclusions

The authors have demonstrated in this report that the UWC IPE program is an important learning approach for improving a number of skills geared towards preparing students to develop a set of professional skills that can enable them to practise in the rural and underserved communities of South Africa. Furthermore, such an IPE program could alleviate professional isolation and promote collaboration among healthcare professional students. The collaboration approach suits the healthcare situations of South African communities better than silo practice, which has been the dominant approach to health care.



Table 2: Interprofessional education: development experiences (n=17)

'During your interprofessional rural placement were you able to appropriately ...'		
	Agree	Disagree
Develop your knowledge base	15 (88.20%)	2(11.80%)
Develop your procedural skills	15(88.20%)	2(11.80%)
Develop your healthcare practice presentation skills	14(82.40%)	3(17.60%)
Develop your written case/community health histories	13(76.40%)	4(23.60%)

Table 3: Interprofessional education: student responses to 12 statements on 'students' learning experiences'^{1,2,4,5,7,8,13} and 'students' service delivery experiences'^{3,6,10-12} (n=17)

'Overall ...'		
	Disagree	Agree
(1) The environment was conducive to learning [†]	2 (11.2%)	15 (88.2%)
(2) The educational experience met my expectations [‡]	7 (47%)	10 (53%)
(3) I had a deeper understanding of the resources and networks required to assist people with health-related problems in the rural community [‡]	3 (17.7%)	14 (82.3%)
(4) I was well prepared for examinations [†]	2 (11.8%)	15 (88.2%)
(5) I was able to negotiate my learning goals [†]	3 (17.7%)	14 (82.3%)
(6) I was able to work together in a team to assess and address community health needs [‡]	3 (17.7%)	14 (82.3%)
(7) I had access to supervision to assist my learning [†]	1 (5.9%)	16 (94.1%)
(8) I had access to adequate Information Technology (computers, internet, etc) to assist my learning [†]	4 (23.5%)	13 (76.5%)
(9) I had a greater understanding of my profession in a health care team approach to rural health issues [‡]	0 (0%)	17 (100%)
(10) Learning with other disciplines helps in becoming a more effective member of a health care team [‡]	2 (11.8%)	15 (88.2%)
(11) It enhances professional practice and relationships	1 (5.9%)	16 (94.1%)
(12) A better understanding of other health professions roles and responsibilities [†]	1 (5.9%)	16 (94.1%)

[†] Student learning experience

[‡] Student service delivery experience

The article reveals important components of learning that need to be incorporated in the UWC IPE program to improve its efficiency. These include the relevance of a coordinated process initiated by the faculty, with the involvement of all the departments, to participate in designing common IPE goals linked to the objectives of social responsibility and the training of supervisors who are able to translate this into practice.

The role of the UWC FCHS is important, particularly if it regards community-based IPE as important for the development of socially responsible graduates. Individual departmental objectives may need to be aligned to those of IPE, so as to achieve these common goals, which should be in line with the UWC's commitment to achieving its set of graduate attributes.

This article has highlighted the perspectives of health sciences students on their experiences of IPE and its impact on their



professional skills development to practise within rural underserved communities. Therefore, the authors recommend further research to evaluate the IPE entire process over a longer period, so that more students and professions could participate. Future study could include departmental and faculty views on using IPE for preparing students for social responsibility and professional collaboration.

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