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'Going rural': driving change through a rural medical education innovation

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ABSTRACT

Introduction: Medical education across the globe is in a state of flux influenced by a number of drivers for change. In response, institutions are seeking to re-align their curricula to address the prevailing imperatives. Against this backdrop, the training of practitioners for practice in rural communities was identified as an educational priority, and led to the establishment of a rural clinical school (RCS) within a Faculty of Medicine and Health Sciences in South Africa in 2011. This article describes the students' experiences in the first year that this innovative educational model was implemented and explores the extent to which it influenced their thinking and practice.

Methods: A qualitative, formative evaluation study of the first year of implementation was undertaken. Data was generated from in-depth interviews. This article focuses on individual interviews conducted with the eight students at the RCS, which explored their experiences during a year-long clerkship. Transcripts of interviews were thematically analysed.

Results: Four themes emerged from the analysis: a learning experience that differed from what was experienced at the tertiary training hospital, an enabling clinical environment in the district and regional hospital, the positive role played by the specialists, and the influence of the community immersion. Underlying all of the responses was the building of relationships over time both with supervisors and with patients. Evident from the responses was that students' confidence in their clinical skills and decision-making abilities was heightened while their approaches to their own learning were enhanced.

Conclusions: To respond to the call for educational reform and a heightened awareness of social realities, innovative approaches to the training of medical students, such as those adopted at the RCS, are indicated. It is argued that the learning facilitated by these rural medical education models has the potential to offer learning experiences that can lead to transformation through a change in practice and attitude among the students, and ultimately also enable curricular renewal at the institutional core.

Key words: community-based education, innovative curricula, medical education, rural clerkships, transformative learning.

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Introduction

In 2007, Kent and De Villiers described medical education in South Africa as entering 'exciting times'[1] that could serve as drivers for change. They specifically highlighted the training of practitioners for practice in rural communities as an educational priority. Training institutions in Australia, Canada, the USA, South Africa, and elsewhere in the world, are seeking to address this imperative by offering a range of innovative educational opportunities for students to be exposed to an extended rural health experience[2-8]. The extent to which such exposure contributes to retention is contested in the literature with the quality of evidence having been described as 'low' to 'very low'[9]. A recent study has, however, provided 'significant evidence to support rural medical recruitment and retention through education and training' including key predictors for selecting rural practice[10]. What is evident from the literature, however, is that rural educational interventions generally bring with them considerable benefits for the students, leading to enhanced confidence in their skills and in their ability to be effective in practice[2,4,8,11]. It is argued that in rural contexts there are fewer students, less competition for attention, and a greater opportunity for students to contribute to the activities in the clinical environment in a real way[12,13].

Another prevailing driver for change in medical education at this time resides in the call to medical schools to acknowledge their social accountability. Boelen and Woollard suggest that all activities – education, research and service – should speak to the healthcare needs of the society they serve[14]. Similar perspectives are evident in the 2010 *Global Consensus for Social Accountability of Medical Schools*[15] and the Training for Health Equity Network[16], with further studies describing instances where the philosophy behind social accountability underpins the thinking behind rural educational innovations[17,18]. A 2008 systematic review of medical school rural programs supports this, arguing that access to health care could be significantly influenced if such programs are expanded[5].

The Ukwanda Rural Clinical School

Ukwanda is a Xhosa word which can be translated as 'to grow' and 'develop'; to make a positive difference. This article explores the potential of an innovative rural education intervention to facilitate such growth and lead to transformative learning experiences – experiences that might 'produce enlightened change agents'[19] who can effect change across the system and respond to the social accountability imperative previously described. The discussion is informed by the findings of a formative evaluative research project[20] that considered the first year of implementation of the Ukwanda Rural Clinical School (RCS) at the Faculty of Medicine and Health Sciences, Stellenbosch University (SU), South Africa, and the focus is on the students.

In South Africa, the majority of students studying medicine are admitted to undergraduate training programs directly after leaving high school. In 2011 eight medical students commenced the sixth and final year of their undergraduate (pre-service) medical studies at SU on a rural platform. With this event, SU became the first university in South Africa to offer a year-long, comprehensive rural placement opportunity for medical students. Two educational models are followed at the RCS. At a regional hospital approximately 100 km from the tertiary hospital, students complete a discipline-based, clinical clerkship in the specialties at this secondary level setting (internal medicine, psychiatry, obstetrics and gynaecology, paediatrics and child health, general surgery, orthopaedic surgery and family medicine). Every Thursday, these students are exposed to a primary healthcare service learning program at a community clinic that has been established as a learning centre. The second model, known as the longitudinal integrated model (LIM), sees the curriculum 'walk through the door': it is not discipline-based and the students learn by seeing patients presenting with undifferentiated problems. A year is spent at a district hospital under the mentorship of a specialist family physician, supported with regular visits from other specialists from the regional hospital. A dedicated 'academic day' occurs once a week during which all of the students come together

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to attend a series of tutorials offered by the disciplinary specialist. In 2011 two students participated in this model while the other six were based at the regional hospital. In 2012, four students followed the LIM model with a further 14 students based at the regional hospital.

All students completed the same final summative assessments at the central hospital. Assessments during and at the end of the discipline-specific clerkships have been adapted for the RCS and the majority are conducted by the local specialists at the regional and district hospital. A new modality for assessment during the clerkships – in the format of a case-based patient portfolio managed by students – has been introduced at the RCS.

Methods

The aim of the study was to explore the experiences and perceptions of the different role-players who had been involved in the first year of implementation of the RCS with a view to providing a benchmark for a longitudinal evaluation. Given the diagnostic and developmental nature of this objective, a qualitative, formative evaluation was conducted. Such analysis is regarded as provisional and its focus is to consider the effectiveness of the intervention with a view to offering recommendations to enhance it[20]. Drawing on previous studies that have had similar foci[11,21] a range of data-collection activities were undertaken. After obtaining ethics approval and the requisite consent, 22 interviews were conducted, three in pairs, with the eight students, ten specialist physician preceptors involved in the training on the rural platform and seven faculty and district health representatives (key informants). The interviews were all conducted before the final assessments for the year had taken place. In addition, a focus group interview was conducted with six community care workers from the primary healthcare service learning centre.

Following Miles and Huberman's[22] analytical ladder, the transcribed data were subjected to thematic content analysis allowing for inductive and interpretive work. Each data set (students, specialists, key informants and community care workers) was initially analysed individually by the principal investigator or one of the research assistants. This analysis, using ATLAS.ti v7 (http://www.atlasti.com), was conducted subsequent to different members of the research team assisting in establishing code lists based on preliminary readings of a sample of the transcripts. To enhance the rigour of the study, the iterative process of repackaging and aggregating the data was undertaken by the principal investigator and then subjected to scrutiny by different members of the research team during different phases of the analysis. This article, however, focuses specifically on the findings that emerged from the student interviews, although conclusions were inevitably informed by the entire data set. Each quote in this article is referenced to the interviewee; translated responses are indicated with the letter 'T'.

Ethics approval

These research activities were undertaken subsequent to ethics approval being obtained from the Health Sciences Research Ethics Committee at the Faculty of Medicine and Health Sciences at Stellenbosch University; ethics approval number N11/07/245.

Results

The findings that emerged from the analysis of the students' responses have been organised according to four themes: a different learning experience, an enabling clinical environment, the role of the specialists, and community immersion.

A different learning experience

A recurring theme in the students' responses was that the learning experience at the RCS differed significantly from their previous experiences at the tertiary training hospital. They described how they had changed as learners and in their approaches to learning. They felt they had become self-regulated learners, recognising their responsibility in the

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learning process as they made more use of self-study to enhance their understanding:

> *Yes, it made me more of an independent learner. Obviously I had to work through things myself. Like I said, there aren't TUTs* [tutorials] *the following day with doctors on a regular basis, so you need to motivate yourself to study, to keep up to date with the work that's necessary. So in that sense, independent learning is something that I've learnt.* (8)

They described having adopted a more evidence-based approach as part of their practice; how the patient had become the focal point replacing that of the disease:

> *I've always just studied topics … But now I remember better, because I've actually seen a patient with such a condition … I'd remember Mrs X and I'd always remember it, because I'd know exactly. Because I was part of her management, I'd know exactly what we did when, which medication to add, how Allied Workers helped us, simple things.* (4)

Most importantly, the overall experience had contributed to a growth in self-confidence, more decisive decision-making and enhanced critical reasoning:

> *The foundation has been laid so that I can function independently as an adult next year and see patients with confidence.* (6, T)

> *Together with confidence, the other thing that they stressed a lot this year, is clinical reasoning. If you do something, why do you do it? Can you justify it? This is never given to you at* [the tertiary hospital]. *You never have the opportunity to think about those things yourself.* (2, T)

Clinical reasoning is an important component of the Bachelor of Medicine and Bachelor of Surgery program across all years of study. However, it would appear that the student making the final comment above became more aware of its application by virtue of the questioning and prompting provided by the specialist. This Socratic approach was also seen as having been facilitated during the discussions around the student portfolio cases.

Both students following the LIM experienced the year as positive and completed it successfully despite their concerns about the academic input they received, and the extent to which they had sufficient training:

> *In terms of the curriculum walks through the door, I think it was good in the sense that you know then what the relevant things are, because you discover that you see a lot of them, so those are the important things, so you have to know that well. The difficult thing for me is the realisation that you still have to know something about the other things.* (3, T)

All of the RCS students felt that they had worked much harder than their peers at the tertiary hospital; this ought to raise a warning flag for the program administrators.

> *We work very hard here. We are working like doctors, which can be good and it can be bad. A lot of times the doctors actually forget that we're students, because we're so part of the team. We're actually tired when we get home, and there's a lot expected from us because we're the only students and we're these doctor's first students, and they just expect us all to do well. So, time is a big issue for me in terms of studying.* (4)

Equally evident from the data was the fact that in some cases planning had not been sufficient, and that the reality of implementation had been underestimated. For example, there was a lack of clarity and preparedness among the students with regard to assessment, which made them more anxious:

> *But what I have learnt here is that you do not have to know everything in the whole wide world … if you have an approach to a patient, you can reach a diagnosis on how to treat this patient. But this* [the assessment] *is still stressful. I do not know what to expect.* (6,T)

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An enabling clinical environment

The clinical environment, both at the regional and the district hospitals, was described by the students as enabling and generative. Students felt that they were making a meaningful contribution to the care of the patients, which encouraged them to ensure that they were well-informed about each different patient's case:

> *Well,* [at the tertiary training hospital] *for example you do not really take decisions for patients. Often you are just ignored when on a ward round. Your contributions are not really taken into account; … here … you are part of the team. You take part in the decisions about patients. Your input is actively listened to, and this also motivates you to look a bit at the most recent literature in order to contribute to the discussions and decisions about patients.* (1, T)

> *It makes much more sense to me to rather learn in your final year to treat a patient holistically from scratch than to see a referred patient* [at the tertiary training hospital] … *You learn a bit about the treatment, but there a patient comes to you and tells you what his problem is. It is not a case of him arriving and telling you that he does not feel well and you have to look for the problem.* (2, T)

> *The nice thing about being here was that we could actually, there was continuity of care. So we built up relationships with patients, with parents of patients. We worked like doctors, but in a good way* … (4)

Issues of team work, collegiality and mutual respect across disciplines, professions and status emerged strongly. The students felt they were part of the team that was described as working well together. The environment was seen as a training ground for adopting an inter-professional approach to health care as relationships evolved over time:

> *So there is always reciprocity among the members of the team, and that is something that you do not easily find at* [the tertiary training hospital] … *To me there is a big difference between a group of people and a team. Teams work together, groups walk together.* (5, T)

> *The relationship that you have with the allied health disciplines – I never really understood what OTs do and what physios do and what dieticians do, but this year, you get to know them so well and it's an open relationship. You can ask them questions any time.* (1, T)

The role of the specialists

The specialists were seen as role models, particularly with regard to their commitment to their work and to the students. The students spoke appreciatively of their preceptors and consistently about the support they received from all of the hospital staff. They recognised the knowledge and skills of these health practitioners who were often prepared to go the extra mile to help them.

> *Another thing is also the relationship with the consultants* [specialists at the regional hospital]. *They are very keen to help, and they are also very accommodating, much more than I ever experienced at* [the main tertiary hospital]. *If you have a problem with something, or you feel that you do not get exposure in a specific field, or anything like this, they are just very approachable. You can go to them and speak to them as people. It is not the consultant up there and you are a poor little student down here.* (3, T)

> *No, no, no. They never expected you to be on your own, to do something on your own. They were always; they were so, especially the medical officers, so keen to teach you.* (1,T)

> *We had a lot of sessions with consultants* [specialists], *where we'd actually sit down and discuss portfolio cases, which was very important. A lot of patient-centred discussions, so it wasn't just like at* [the tertiary hospital] *where we discuss a topic, which makes no sense if you don't have a patient to have it based on.* (4)

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Community immersion

The students described their weekly community outreach exposure as being most influential in their year-long training in that it changed their attitudes and perceptions, enabling them to rediscover their purpose in medicine:

> *… when you start medicine, you're all wanting to save the world, and you're enthusiastic and excited about becoming a doctor, and as the years go by, you lose that … But things like* [the community clinic] *actually just bring you back down to earth and you're humbled, … not only in terms of medicine, but in terms of just humanity. There's a lot more to life.* (4)

A response from a community care worker who worked with the students emphasises the attitudinal shift illustrated by the previous quote:

> *… it is not as if he is a doctor and the patient's circumstances are perhaps now dreadful, and now he feels he is the doctor and he does not quite fit in there. He sat with the patient on the floor, or on the bed, and touched the patient and spoke beautifully to the patient in the shack* [laughter], *so then the patient feels okay, but he can open up nicely to the doctor, understand, because he is accepted for what he is.*

A heightened sense of self and social awareness was also described. Students felt that their ability to be more flexible and to adapt to unknown circumstances had been enhanced. These they felt were characteristics that would benefit the community within which they eventually would be placed as interns after graduation:

> *… I have learned such a lot on the Thursdays in* [the community clinic], *and then to do the home visits and to really understand the context of the patient and to see [the circumstances] … I cannot expect [a patient] must take [her] tablets if these are the circumstances [she] lives in. So, then you learn to know much better another deeper dimension, the patient.* (1, T)
>
> *Skills … totally and completely … exceeded all my expectations. I have never ever done so many things in my whole life. Yes, I am so ready for my internship next year with all these skills that I developed.* (1, T)

Discussion

If medical education, and indeed the education of all health professionals, is to respond to the call for 'instructional and institutional reforms'[19] that will lead to 'transformative learning and interdependence in education', then adopting different and innovative ways of doing, as at the RCS, is a logical progression. The recurring theme of the RCS experience being different to anything the students had experienced before provides a case in point. The findings point to a rich clinical learning experience for the students who spent their final year at either the district or the regional hospital. Equally important, however, are the students' responses to the environment; these reflected how they had changed their practice, and had demonstrated an ability to adapt.

Innovation is not without its challenges. By implication it requires entering uncharted territory. It could be argued that much of what the students' described had to do with the smaller numbers, allowing them one-to-one access to the clinicians and to the patients, and to the duration of the clinical training on the rural platform, which ensured continuity over time. This enabled the building of relationships, which heightened students' confidence in their clinical skills and decision-making abilities, while also enhancing their approaches to their own learning[23]. In the context of clinical education, Hirsh et al[24] have used 'continuity' as a construct around which their reform activities could be organised. Although this framework was not used in the planning of the RCS, the notions of continuity of care, of curriculum and of superivison[24] resonate with the findings of this study.

It is also conceivable that these students had simply started moving towards academic maturity as they neared the end of their studies.

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Nevertheless, there was a strong sense that this change had occurred specifically because of their exposure to the different (rural) environment. Reid[12] suggests that '… one contribution of the rural habitus in the educational process is to slow things down, simplify issues so as to allow students to see the system and its principles more clearly and learn in a cooperative environment'. Working as part of the team gave students a sense of belonging and encouraged a sense of responsibility towards their colleagues and their patients.

It was at the primary healthcare learning centre that the students learned about the realities of primary health care in a South African community. Much literature describes the anomaly that sees medical students lose their altruistic intent over their years at medical school[21,25]. It was evident from the students' responses that they had been deeply influenced to reflect on their role as healer and physician as a result of getting to know their patients, over time, not only as patients, but as members of a family, and members of a community. Most important, however, was that, with one exception, all of the students stated that they intended to return to a rural context when they completed their internship and community service commitments.This is an important outcome. Snadden[26] hints at the economic and social benefits that can arise for smaller communities from such academic interventions, providing a mandate for replicating such activities where appropriate.

These findings are based on perceptions and are therefore subjective representations of individual realities. Another limitation is that no interviews were conducted with patients either in the hospital or at the primary healthcare learning centre. The researchers were required to draw on the reports provided by the community care workers as to the extent to which the students were accepted by local communities, but the hospital patient voices are silent. These aspects will be addressed in a longitudinal study currently under way.

Conclusions

The aim of this study was to determine the success of the first year of implementation of the RCS with a view to providing guidance for further decision-making and ongoing implementation, especially as the numbers at the RCS continue to grow. The study generated a wealth of context-specific information that could be instructive for others seeking to embark on similar curriculum innovation and community-based interventions.

Ultimately, the study supports the theory that the RCS provides a space, a 'pedagogy of place'[12], creating opportunities for transformative learning. Already the findings of this research have served as a catalyst for further revision of the program, particularly with regard to enhancing clarity around the assessment activities. It is hoped that the implementation of this innovative medical education model could serve as a test case that might guide further implementation in South Africa and elsewhere. Furthermore, it has been argued that implementing innovation at the periphery of our academic institutions, such as at the RCS, has the potential to effect fundamental change at the core[26]. It offers an imperative to remain robust in all endeavours in this regard.

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