

Medical students' perceptions of their development of 'soft skills'

Part I : A qualitative research methodology

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Abstract

Background

Following the introduction of a new, integrated, problem-oriented undergraduate medical curriculum at the University of Pretoria (UP) in 1997, a research project was undertaken to study interpersonal skills, professional attitudes, teamwork, ethics and related topics – which have come to be known collectively as 'soft skills'. This contribution is the first of two articles on the professional socialisation of medical students and their development of 'soft skills'. It describes the particular qualitative methodology developed for, and applied to, the study of soft skills among medical students at UP.

Methods

This paper describes the aim of the study, reasons for adopting a qualitative research approach to achieve this aim, the theoretical orientation underpinning the qualitative approach that we considered most suitable, the design, the sampling, the data management and analysis, and the methods that we deployed to ensure the credibility of the findings.

Research Design

The aim of the study was to explore the subjective meanings that students attributed to soft skills, as they understood them. These subjective meanings involve the way students interact meaningfully with fellow students, lecturers and other individuals participating in the medical and clinical education programme, and the way they construct shared conceptualisations of soft skills and medical education in their lives and social world. A qualitative approach was considered most appropriate, as this study set out to uncover subjective and diverse meanings that do not necessarily amount to generalisable truths. The particular qualitative strategy or design used was that of an extended case study, or 'casing', within the modernist theoretical orientation of symbolic interactionism. Elements of process evaluation were incorporated into the design to account for the process of curriculum reform within which this study was embedded.

We recruited participants for this study from two cohorts of students. The first group, who completed their studies in 2001, had followed the traditional curriculum, while the second group, who completed their programme in 2002, had followed the reformed curriculum. The data collection tools were face-to-face individual interviews, focused group interviews and solicited autobiographical sketches. The utilisation of more than one method or data source enabled triangulation or cross-checking of findings. We followed an inductive reasoning approach, which means that we did not search for data to test any hypotheses that had been formulated prior to commencing the study, but focused instead on building constructs that were grounded in or reflected intimate familiarity with the students' world.

Conclusion

The modernist qualitative research approach enabled us to uncover, describe and illuminate the subjective points of view on soft skills as expressed by final-year medical students before and after curriculum reform. More specifically, by carrying out an extended case study we were able to perform a process evaluation of the curriculum reform in terms of soft skills and the professional socialisation of the students. This paper outlines how qualitative research methods enabled us to capture and explore aspects of the inner life (social worlds) of these students. Whether they would be the same, similar or different in another setting are questions for further exploration or research – questions prompted by our study in a manner that illuminates the qualities that may be inherent in these subjective meanings.

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Introduction and context

In this paper, we describe the process of qualitative research as exemplified in the 'soft skills' project, which is a research programme that emanated from the introduction of a new, integrated, problem-oriented undergraduate medical curriculum at the University of Pretoria (UP) in 1997. In an attempt to keep up with changing international trends in medical education, the groundwork for curriculum reform in medical education at UP was laid in the late 1980s and early 1990s, *inter alia* through visits to leading medical education institutions abroad and an extensive local consultation process. The new vision for the education of medical doctors included the following: integration of appropriate knowledge across interdisciplinary boundaries; application of knowledge, skills and professional attitudes to solve clinical and other problems; improvement of interaction with patients; and the nurturing of life-long learning. The first group of students entered the reformed medical programme as first-year students in 1997.

A number of 'golden threads' run through the six-year curriculum and are included in and assessed across various teaching blocks. These include Interpersonal Skills, Group and Team Work, Professional Attitudes, Bioethics, Research-based Clinical Practice, Problem Solving and Critical Thinking, Health and the Law, Economics and Health, and an Epidemiological Approach to Health. The golden threads related to interpersonal skills, professional attitudes, teamwork and ethics support the development of what has come to be called 'soft skills'.

In the first phase of the 'soft skills' project we explored and described undergraduate medical students' experiences of and viewpoints on soft skills as part of their professional socialisation as physicians. One of our aims was to conduct an in-depth study enabling insight into the students' social worlds in order to appreciate the way they attach meaning to their training and to establish the effects, if any, of the introduction of the reformed curriculum. This paper (part I) introduces some of the decisions we took during the first phase of the project, as well as the particular qualitative methodology we developed and applied. In the second paper (part II) we present the students' views on how they develop soft skills.¹

Reasons for a qualitative research methodology

We attempted to explore the subjective meanings students attached to soft skills as they understood the concept. These subjective meanings involve the way students interact meaningfully with fellow students, lecturers and other individuals participating in the medical and clinical education programme, and the way they construct shared conceptualisations of soft skills and medical education in their lives and social world.

An exploratory qualitative research methodology was chosen to uncover these subjective meanings. We chose qualitative research methods for a number of reasons. First, a qualitative approach was considered apt in a study on unknown subjective meanings, especially since some of the meanings we wanted to uncover are diverse and do not necessarily amount to generalisable truths. Second, setting hypotheses for testing in a quantitative design would have amounted to little less than wild speculation on what the hypotheses should be, since this study was the first research on the soft skills of medical students at the University of Pretoria's School of Medicine.

The qualitative methodology as used in this study is radically different from the quantitative methods with which clinicians are more familiar. We will now proceed to outline the philosophical assumptions and theoretical orientation that we adopted to guide our study.

Because our aim was to uncover the subjective meanings attached by the students to soft skills, we adopted the **ontological** position that social reality is constructed and 'built up from the perceptions and actions of the social actors' or individuals and that these social entities are not objective in the sense that they 'have a reality external to social actors'.² People attach meaning to the situations in which they find themselves, in this case by making sense of a particular medical school and its curriculum. We thus depended upon the 'voices' (quotes and themes in words) and interpretations of the students participating in the study to help us understand soft skills and medical education.

We adopted a congruent **epistemological** position in that, in contrast to the usual quantitative methods, we accepted the postulate that subjective meanings of social behaviour qualify as scientific knowledge.²

Within this ontological and epistemological framework, '[t]he recent

development of qualitative research proceeded in different areas, each of them characterized by specific theoretical backgrounds, specific concepts of reality, and their own methodological programs'.³ We chose a particular **theoretical orientation** within the so-called 'modernist'⁴ approach to qualitative research, namely symbolic interactionism.^{5,6,7,8} Symbolic interactionism is a 'theoretical perspective in sociology and social psychology that views social interaction as taking place in terms of the meanings actors attach to actions and things'.² We wanted to determine how the students who participated in the study saw and defined their situation and how they had come to behave as they did.

Flick aptly describes the methodological implications of this perspective as follows:

The consequence is that the different ways in which individuals invest objects, events, experiences, and so on with meaning form the central starting point for research ... The reconstruction of such subjective viewpoints becomes the instrument for analyzing social worlds ... [and more particularly] to reconstruct the subject's views in different aspects. The first is in the form of subjective theories, used by people to explain the world – or at least a certain area of objects as part of this world – for themselves ... The second is in the form of autobiographical narratives, biographical trajectories that are reconstructed from the perspective of the subjects. But it is important that these should give access to the temporal and local contexts, reconstructed from the narrator's point of view.³

The qualitative design and sampling

We selected the **case study** or 'casing'⁹ as the particular qualitative **strategy** or **design** that would be the best vehicle for this type of study. The study resembles Stake's instrumental case study and, more particularly, the extended case study.¹⁰ We also incorporated elements of **process evaluation**, as described by Patton,¹¹ into the design. Process evaluation focuses mainly on the internal dynamics and concrete practices of a process in an effort to comprehend its strengths and weaknesses. This approach enables a scientifically sound evaluation of soft skills in the process of curriculum reform.

The sample

To obtain a comprehensive picture of soft skills and their place in the process

of curriculum reform, the study should eventually include an examination not only of the experiences and perceptions of the students, but also those of all the other stakeholders in the School of Medicine, and of the relationship between these participating actors. As these focal concerns could not all be dealt with in a single study, we agreed that the first phase would be limited to the students.

We recruited participants for this study from two cohorts of students. The first group (2001) had followed the traditional curriculum and the second group (2002) had followed the reformed curriculum. In selecting students from the two groups, we used the students' knowledge, as well as our own knowledge, of student groupings to determine the nature of the **indigenously established student categories**, from which we recruited the research participants. For both cohorts of students we arrived at a similar indigenous classification scheme or typology, including types such as the 'married group', the 'yuppie four-by-four (vehicles) group', the Mildents (students employed and sponsored by the Defence Force), the 'nerds', hostel students, black students, and the English students or 'Boys High' (school) group. Although some students belonged to more than one of the categories, we used this classification scheme to ensure that volunteer participants covered all the respective categories adequately so as to capture a broad range of opinions. Care was also taken to ensure sufficient representation from different language groups.

While we were doing the fieldwork, additional students were identified to explore central emerging themes and to sensitise concepts¹² we had developed in our attempt to interpret the data. Finally, we approached particular groups or individuals who had been identified by fellow students as being outspoken about the curriculum and related student matters and who agreed to participate in the research. In 2001, a total of 42 students from the traditional curriculum participated, with a male to female ratio of 10:9 and a mean age of 23.3 years. In 2002, a total of 49 students from the reformed curriculum took part, with a male to female ratio of 7:5 and a mean age of 24.6 years.

Data collection tools

Our data collection tools were face-to-face individual interviews, focused group interviews and solicited autobio-

graphical sketches. Each participating student contributed through only one data collection method. Our utilisation of more than one method or data source enabled the triangulation or cross-checking of findings.⁸ All participants gave written informed consent for participation in the research and the study was approved by the local research ethics committee.

We decided on two types of interviews – unstructured, face-to-face **individual interviews** and interviews with **focus groups**. For both types, an interview guide with the same set of topics and themes was used to discuss aspects related to medical education and soft skills. The guide was developed after a reflective discussion among the researchers on the aim of the study and the relevant outcomes envisaged by the reformed curriculum. Questions were broadly formulated and contained items relating to the students' background and reasons for studying medicine, their understanding of soft skills, the establishment of a patient-doctor relationship of trust, dealing with difficult patients and situations, the students' personal changes during their medical studies, the students' perceptions of preparation with regard to soft skills, and observations of unprofessional behaviour. After a pilot in-depth individual interview and a pilot focus group interview, the guide was refined further. While we did not always ask these questions in a particular sequence, we ensured that all of them were dealt with during the interviews.

At least two members of the research team were present during all the individual and focus group interviews – one as the principal moderator or interviewer and the other(s) for compiling field notes and posing complementary questions. This was done, *inter alia*, to ensure that individual interviewers did not introduce particular biases into the data.

The focus groups in our study consisted of four to nine participants. Purposeful discussions were held, the aim being not to reach consensus on the matters under discussion, but to elicit a range of opinions and new views on the subject. In all, seven focus group interviews (four in 2001 and three in 2002) and 16 individual interviews (seven in 2001 and nine in 2002) were conducted. Eight of the authors participated in this process

The type of autobiography we used

for the contributions by student writers is known as an **autobiographical sketch**. We suggested to them that they should compile their essays in the language of their choice (i.e. Afrikaans or English) and asked them to present a brief outline of their life and to write about a few topics that were generally the same as those we addressed in the interviews. We also urged them to share with us any experiences that had been particularly important to them. In a few cases we conducted brief follow-up individual interviews with a view to clarifying certain experiences and viewpoints described in the essays. In total, 23 sketches were obtained (nine in 2001 and 14 in 2002).

Management and analysis of the data

Two professional transcribers typed the taped interviews in their entirety to give all members of the research team access to these narratives simultaneously via hard copy or electronic file format. The transcripts were then compared with the interview notes of the researchers. The autobiographical sketches were also captured electronically and made available to all the researchers everyone. In accordance with qualitative research practice, we generally compiled **field notes** as soon as possible after the conclusion of the interviews by reflecting on the interview approach, our performance, and the participants' accounts and non-verbal behaviour. This also enabled peer cross-checking of any potential biases that might have been introduced. In addition, **reflective team discussions** were held at the outset and during the course of the fieldwork in order to adapt and formalise our approach with regard to key phases and key decision-making steps. During these discussions we also paid attention to new insights gleaned from new data. We continued collecting more data until a saturation point was reached and no new trends could be identified. These discussions were audiotaped and some of the more revealing ones were also transcribed for supplementary consideration in the analysis of the data.

A **research management system** was created, with each document receiving an individual code that would make it easy to identify electronically filed and secured documents that might be required during the intensive data analysis and report writing stages. Different categories of documents had different codes and each consecutive document received a new number in

chronological order. The numbering of documents was continuously updated so that we had a 'tracking record'.

Analysis of the data

Apart from studying qualitative and evaluation methods and casing (particularly the case study, *Boys in White*,⁵ as a classical example of the application of symbolic interactionism as a theoretical framework), we decided to abstain from reviewing the literature on medical education and sources related to the study area until we were well into the data collection phase. The use of existing literature, universal propositions and generalisations, and abstract theoretical concepts and empirical statements derived from previously conducted research as a point of departure is associated with deductive reasoning, a broad strategy generally used by quantitative researchers to analyse their data. In contrast, we followed an **inductive reasoning**¹³ approach, which implies that we did not search for data to test any hypotheses that had been formulated prior to commencing the study, but rather focused on building constructs that were grounded in or reflected intimate familiarity with the students' world. By taking this approach we attempted to obtain an empirically based understanding of soft skills and medical education within the particular context of the School of Medicine of the University of Pretoria.

A huge amount of qualitative data was generated. We opted for a manual rather than a computer-assisted analysis of the qualitative data (CAQDAS). Because this was an exploratory study undertaken by researchers from various disciplines, we wanted to steer clear of any possibility of the analysis being shaped by conceptual assumptions underlying a particular software programme.¹⁴ We did not apply formalised abstract qualitative analytical methods either; in fact, our general inductive approach, as well as some of our specific ways of describing the data, was similar to Glaser and Strauss's grounded theory.⁷ Our search for themes that deviate from established patterns is associated with analytical induction.¹⁵ Finally, some notions of content analysis and aspects of phenomenological interpretation can be inferred from our analytical approach.

The following points summarise this process of data analysis:

- The transcripts were initially divided

and allocated to pairs of researchers because of the huge amount of data to be analysed. In most cases, the data analysts were not the same persons who had conducted the particular interviews assigned for analysis. This further reduced the chances of introducing biases.

- Each researcher
 - read and re-read the material many times until no more new categories emerged;
 - searched for particular concepts and phrases that illuminated social processes, thoughts and behaviours related to soft skills and medical education;
 - tried to identify substantive connections by searching for associations between different segments of material, looking for regularities, variations and singularities in the data. (In sociological terms, we looked for norms of behaviour – were there any interaction patterns and events generally related to medical education and soft skills?)
- The researchers then held a series of group discussions to
 - compare identified and developing categories and to discuss own thought processes;
 - establish points of convergence and build and verify the meaningfulness and validity of developing categories;¹⁶
 - confirm triangulation between various data sources (individual interviews, focus groups and autobiographical sketches);
 - perform a thematic analysis for themes relating specifically to soft skills and professional socialisation;
 - identify and interpret deviations from our major developing analytical ideas with regard to the two cohort groups, as well as to each cohort group separately.

In illuminating our analyses we did not, as Dey puts it, shy away from using classification schemes already available in the literature.¹⁷

- In the end, we did a member check to validate our findings¹⁸ by presenting our final analyses to a few of the study participants who could be reached and by interviewing them on their views of our interpretation.

Ensuring credibility

Authorities on qualitative research currently adopt at least three distinct posi-

tions on the credibility of a study.^{19,20}

- Qualitative and quantitative research should be evaluated on the basis of the same measures.
- Qualitative research should be evaluated on the basis of standards that are appropriate to it and that have been specifically developed for it.
- Qualitative research should be evaluated on the basis of criteria, or criteria should be abandoned altogether.²¹

We opted for the second position and did not adopt quantitative standards such as 'objectivity', 'representativeness' and 'generalisability', because these would defy our aim of uncovering the relevant diverse ways in which students construct and give meaning to their reality.

The transparent and accountable process of deliberating and developing the research as described above supports the trustworthiness of our study. The hallmark of credible qualitative research lies in maintaining flexibility and being receptive to relevant meanings as they are presented by the participants. This we ensured by delimiting our research as little as possible and only as far as our casing design required. We therefore did not develop any rigid or specific research questions beforehand.²²

The **validity** of our study relates to the strength of the qualitative research methodology. It generally assesses whether '...the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account...'.²³

We applied the following strategies to optimise the accuracy of the findings of the study:

- **Rich excerpts** were presented from the interviews and the autobiographical sketches to illustrate the students' experiences and viewpoints.
- We used what may be described as **self-reflection**. We intermittently had meetings during which we would critically reflect on our explication of interviews, trying to clarify our individual biases.
- A form of **peer debriefing** was used. During group discussions and in e-mail exchanges we sought clarification from each other and interrogated our respective 'tunnel vision' interpretations.

- As the first author was not attached to the medical school and three others were not directly involved in teaching, **external auditing** was enabled to some extent.
- Different sources of data – namely the individual interviews, focus groups, and autobiographical sketches – were **triangulated**.
- We applied **member checking** to validate our findings by requesting some students to study our findings and interpretations and to indicate whether they felt that these were credible.
- We compiled a detailed account of the execution of the research, which may serve as an **internal audit**.²⁴

We adopted the position that it would be naïve, if not dangerous, to purport that the researchers' formal training and knowledge, tacit knowledge and experiences did not affect the analysis and interpretation of the data. For the findings to be credible in a qualitative study, the researcher should do the responsible thing, namely to state clearly his or her assumptions, values and hypotheses so that these can be tested against the analyses made and the texts produced. As Gilgun points out, naïve empiricism, if not checked, may result in researchers influencing findings in ways they do not recognise and blocking out alternative and potentially important analyses.²⁵ Sketching some of the key techniques and methods used in this study, as well as our most salient decisions, was an attempt to assist readers to grasp some of the distinctive and exhilarating features of qualitative research, and to help them in assessing it. Our own assessment of this case study and the design we applied is that it enabled us to systematically and ethically manage various set criteria for the execution of qualitative social research, thus enhancing its quality.

This research methodology does not allow us to claim that our findings are representative or that they would necessarily apply to another setting. Instead, it uncovered the subjective meanings regarding soft skills in a particular setting. Whether they would be the same, similar or different in another setting are further questions for exploration or research – questions prompted by our study in a manner that illuminates the qualities that may be inherent in these subjective meanings.

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Declaration of interest

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Ethical approval

Ethical approval for conducting this study was given by the Research Ethics Committee of the Faculty of Health Sciences, University of Pretoria (No S183/2001).

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