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‘Talking technical’: Learning how to communicate as a health care professional

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Abstract: The focus of this paper is on the oral communication practices of radiotherapists as clinical practitioners and as university lecturers. A case study approach was chosen as the most appropriate research strategy for capturing authentic communication practices in clinical and educational settings. The communication practices of the participants were observed and video-taped in academic classrooms and clinical workplaces. The research participants were asked to watch the video-recording and to reflect on their communication practices. The data obtained from the research processes, which included observation schedules, video footage, and transcriptions of interviews, were thematically analysed. A model of radiotherapy communication evolved, consisting of three main oral professional communication genres, namely intra-, inter- and extra-professional communication. Analysis showed that the different genres contained both formal and informal registers, and that technical registers dominated in intra- and inter-professional oral communication. It was concluded that health science professionals use a continuum of communication practices, which includes formal and informal registers, as well as technical and non-technical lexis. Mastery of oral communication practices plays an important role in radiotherapists’ professional identity and expertise, and enables novices to discover a ‘professional voice’.

Introduction

Radiotherapy is a technical health science field that involves the treatment and care of cancer patients. Academic radiotherapy departments are often located in close proximity to clinical radiotherapy departments in a tertiary teaching hospital. In the education of radiotherapists, radiotherapy lecturers tend to take responsibility for the more theoretical aspects of the course, while clinical educators (who are qualified radiotherapists) take responsibility for guiding and supervising the practical components of the course. In reality, academic lecturers, clinical educators and their students, tend to move in and out of the academic classroom and hospital department on a daily basis. Because of the movement between academic and clinical contexts, it is particularly important that students become aware of the communication norms in the different contexts of learning about radiotherapy and treating cancer patients (Butler *et al.*, 2005). Radiotherapy students, in the development of their professional identity and professional practice, need to master communication practices that are usually implicit in clinical interactions (Wyrley-Birch, 2006).

Communication in health care

This paper uses the terms ‘communication practices’ to describe the actual communication events of a specific group – in this case clinical and academic radiotherapists. The focus of this study is on the identification and description of the different genres of radiotherapy communication. Earlier work (Bhatia, 2008b) emphasised the internal features of different genres (Bhatia, 2008b). The identification of professional genres has, however, highlighted the greater importance that external issues of context, purpose and audience have on professional communication (Bhatia, 2010). An understanding in this paper is that many professional communication genres include a technical lexis. Professionals will often induct their novice members into the group’s practices, including its ways of communicating (Niemi & Paasivaara, 2007; Ekmekci & Turley, 2008). Professional

radiotherapists can thus be expected to play a major role in inducting their students into technical and professional communication practices, acting as role-models and helping them to develop both academic and clinical competence (Palmer & Naccarato, 2007).

There are increasingly diverse students on campuses globally (Omeri *et al.*, 2003). This is also true of the research site of this study. The process of access to professional communication can be complicated by the multilingual nature of the classroom and work environment (Wyrley-Birch, 2006). The medium of instruction at the study site is officially English, although English, isiXhosa and Afrikaans are used interchangeably when communication happens between staff and patients, staff and students, and students and patients, dependent on the home language of each speaker. This is reflective of language practice in other South African contexts where English is largely used as the convenient and dominant medium, but communication among individuals takes a more multilingual form (Crawford, 1999; Alexander, 2003).

In the clinical context, issues, such as informed consent for non-English-speaking radiotherapy patients in English-speaking hospitals, highlight the importance of clear communication (Di Prospero *et al.*, 2006; Gargan & Chianese, 2007). Studies indicate that many non-English-speaking patients are not in a position to give true informed consent due to a lack of knowledgeable interpreters (Butow *et al.*, 1997; Crawford, 1999; Gargan & Chianese, 2007).

Research design, data gathering and data production

The research design involved observations and video- and audio-recording of the communication practices of five radiotherapists and 10 senior radiotherapy students engaged in a sets of related tasks that were selected as being representative of clinical radiotherapy practice and senior level radiotherapy education. A case study approach was chosen as the most appropriate research strategy for capturing authentic communication practices. Data were collected from a series of related interactions. This was followed by semi-structured interviews with the participants using the audio- or video-recordings of the interactions as points of reference. Each interview was conducted in English, recorded on audiotape and then transcribed. The author of this paper was the interviewer and is a lecturer and colleague of the study participants. Consent was discussed and written consent obtained from all participants before each task and the subsequent interviews. Ethics permission for the data gathering was obtained from the research ethics committees of both the higher educational institution and the academic teaching hospital involved.

Observational data were captured in observation schedules, field notes and video-recordings. Verbal data were obtained from the transcripts of the interviews. Standard coding procedures and protocols were used (Geisler, 2003) and content thematic analysis was done using a grounded approach (Strauss & Corbin, 1998). Analytic categories were then developed which captured the lexical, syntactical and stylistic repertoires of radiotherapists' communication practices.

Profession communication in radiotherapy

During the analysis, a model of professional communication, comprising three distinct genres evolved. This model is illustrated in Figure 1.

The three basic genres of professional communication identified are: intra-professional communication (i.e. radiotherapists' communication with each other), inter-professional communication (i.e. radiotherapists communicating with other health professionals, usually in an integrated treatment team), and extra-professional communication (i.e. radiotherapist-patient communication). These oral communication types can be described as 'genres' as they are 'texts' that have specific features and purposes, and are associated with certain types of action (Bhatia, 2008a). These three communication genres entail particular expectations with regard to form, presentation and content. Each of the genres is able to express a continuum of registers, from the formal to the informal, and from the technical to the non-technical. The findings indicated that there were marked similarities between experienced and novice radiotherapists' communication practices across the three genres, with the novice radiotherapists (students) somewhat more aware of their own, and others', communication practices. This is commented on by a radiotherapy student:

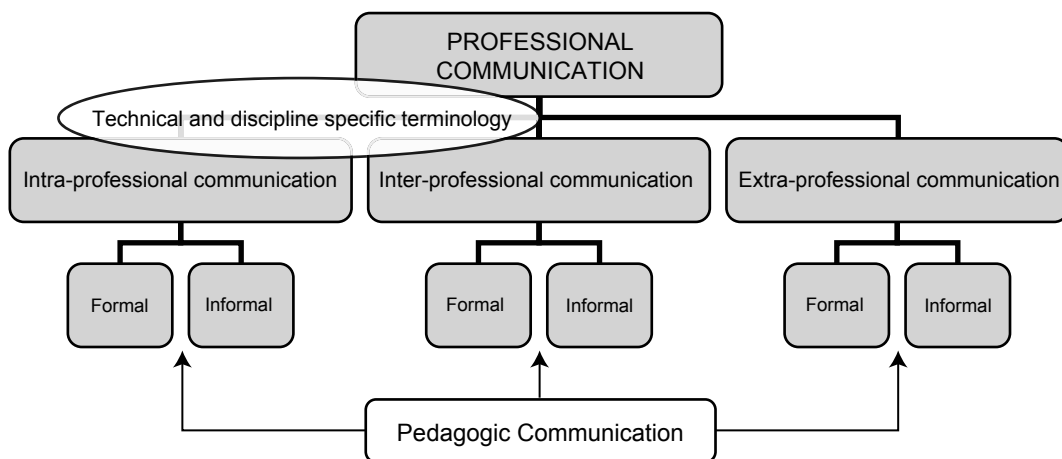


Figure 1: A model of radiotherapy communication

...there are certain levels of communication [that are] different from communicating with a colleague...with a colleague they will understand you guys ... you use the terminology you'll understand ... but if you use that same...work or department language with the patient it's...not going to work...the patient is going to look at you with blank eyes and they not going to totally understand what you're saying so you need to be able distinguish as well when it's the appropriate time to use the appropriate language (Radiotherapy student).

A more technical lexis occurred in the intra-professional and inter-professional genres in both academic and clinical settings. The ability to 'talk technical' was identified as being part of the radiotherapists' professional practice, clinical competence and identity. Niemi and Paasivaara (2007) identified 'technical discourse' as an aspect of radiographers' professional identity. This required ability to 'talk technical' is well illustrated by the quote above, in which the student participant refers to 'work or department language' and the need to know when which type is more appropriate. He notes the importance of choosing the correct audience to 'talk technical' to and that 'talking technical' to a patient (the extra-professional genre) is not appropriate. That is not to say that patient-practitioner communication interactions will never have technical terminology; this is dependent on patients' understanding of their medical condition and general level of education. Sensitivity to patient needs is an important aspect of professional communication in the health sciences (Niemi & Paasivaara, 2007).

Technical terminology

The intra- and inter-professional communication genres comprise scientific and medical terms that are associated with specific concepts and procedures. These concepts and procedures constitute the knowledge-base of radiotherapists' field of practice. The technical language used by radiographers in the clinical environment appears 'natural' to them. So natural, in fact, that if asked to explain concepts, actions, or terminology within their field of practice they may struggle to do so. A radiotherapist, discussing how she learned the language of her particular context, noted the following:

Mostly from absorbing from in-service training and as you get more experience ... it makes more sense and ... you just get more used to using it ... eventually it's just second nature ... you noticed that it was so dense with all of the professional terminology ... which we don't realise we just use it all the time (Radiotherapist).

Formal and informal registers

Radiotherapists can move between formal and informal registers in the same clinical interaction, depending on who is speaking to whom. A good example comes from the making of an immobilisation device for the head and neck area of a patient in preparation for radiotherapy treatment. Among radiotherapists this is known as ‘taking an impression’ or ‘making an impression’. In the practical demonstration where students were learning to make an immobilisation device, both formal and informal technical terminology was used. One of the clinical educators was observed to be meticulous in using the formal technical terms in his initial detailed exposition and demonstration of the task. Once the students started to perform the task, both he and the students started to use more informal terms as they discussed the progression of the task. While performing the task they briefly noted what would be suitable layperson’s terms to use when explaining the procedure to their patients. The formal academic term, ‘immobilisation device’, is only used in written texts and formal presentations, while in practice a range of less formal technical terms are used. Both the clinical educator and senior students in their respective interviews commented on the different terms used in different contexts. From interviews and observations of a variety of interactions, the progression and usage of technical terms in clinical radiotherapy practice can be identified, as in Table 1.

Figure 2 provides examples of the lexical features of the different genres with regard to the manufacture of an immobilisation device in preparation for radiation treatment.

The exchanges in Figure 2 illustrate differences in register, showing the use of technical jargon and the hierarchy of terms. Changes in the term are dependent on the purpose, context and audience. Thus the shift from *mask* (colloquial) to *cast* (informal technical jargon) and then to *impression* (formal technical term) and then to *immobilisation device* (formal professional term) are context dependent. Terms are used differently by the different teams of experts within their common field of practice, radiotherapy, for a common purpose, but involving interactions with different audiences.

Depending on the transactions and contexts, the terms might be used in the different regional languages of the Western Cape, as in Table 2.

As shown in Table 2, Afrikaans and isiXhosa are commonly used within the clinical workplace. Although Afrikaans has terms that are equivalent to English, technical communication in isiXhosa is more limited and equivalent terms are still being developed.

Acronyms and abbreviations

Abbreviations and acronyms, such as ‘PTV’ (planned target volume) and ‘ICRU [International Commission of Radiation Units] point’ are common in clinical practice and standard radiotherapy academic texts (such as textbooks, peer-reviewed journals and reference materials). These abbreviations have become formal technical terms in radiotherapy graphic planning. One of the practitioners interviewed, while teaching students about PTV and ICRU point of normalisation in radiotherapy graphic planning, notes that:

because that is an international norm...they need to know about the report and where to

Table 1: Progression of terms denoting ‘immobilisation device’ in clinical radiotherapy practice

Terminology	Mask	Cast	Impression	Immobilisation device
Classification of terminology	Polite, layperson’s term	Informal technical jargon	Formal technical term	Formal academic term
Generally for use in:	Radiotherapist-patient interactions	Radiotherapist-integrated treatment team interactions Radiotherapist-radiotherapist interactions	Radiotherapist-integrated treatment team interactions Radiotherapist-radiotherapist interactions	Radiotherapy texts Radiotherapy equipment Presentations and websites
Genres	Extra-professional communication	Intra-professional communication	Inter-professional communication	Inter-professional communication

-
- **Consultant** doctor (radiation oncologist) may say to the patient:
*We need to make a **mask** of your face so that you can have the treatment.*
 - **Patient** may reply:
*What sort of a **mask**? How is it made? What treatment?*
 - **Radiotherapist** to patient:
*We need to make a **mask** of your face so that you can lie still to have the **radiation** treatment to the problem area.*
 - **Radiation** laboratory technician to Radiotherapist
*We are ready to make the **cast**? Where is the request form?*
 - **Radiotherapist** to Radiotherapist or student
*We are going to make the **cast** now. Please book the patient for the sim and CT on Monday.*
 - **Radiotherapist** lecturer in seminar discussion with colleagues and/or students:
*An **impression** was made and the patient booked to return for localisation on Monday.*
 - **Radiography** lecturer in written case study analysis or texts meant for colleagues and/or students:
*It was necessary for an **immobilisation device** to be made in preparation for the patient's radiotherapy planning and treatment therefore an **impression** was taken.*
- The radiation treatment technique required the use of an **immobilisation device** for the accurate treatment of the patient.*
-

Figure 2: Typical exchanges between different audiences within the health care team

look for it, what to look for and the fact that they can refer [to it] for those sorts of things...
(Radiotherapist).

The novice radiotherapist noted, of the graphic planning technical terminology, that in her experience:

the language that we use in planning is not like any other language that you would use ... in any other department ... so the only people who really understand is your colleagues, the people that you work with and also the people [on] the [treatment] machines ... they will really understand that language ... (Radiotherapy student).

The communication practices of the radiotherapist and student depicted in both these clinical interactions is specific and understood only by its members in the performance of their respective tasks.

Developing new technical terms

Technical language in any field is constantly evolving (Anderson, Brockman & Miller, 1983). New technology in digital imaging, including the development of three-dimensional mathematical algorithms and treatment planning software, and treatment units for radiotherapy have resulted in new forms of technical language. New terms have been coined to describe various technical functions, for example 'beam's eye view'. In the extract below, a practitioner comments on the difficulty of explaining its essential three-dimensionality function to students:

I try make them see that every time we look at the one picture on the mainframe ... on the plan itself ... then we go back to the beam's eye view ... that's why I make them put up all of the different views and I keep saying ... 'use what you've got available to help you orientate yourself' ... because it's all very well for the coplanar stuff but once you hit the non-coplanar it's very difficult to ... unless you using whatever you've got ... it's very difficult to visualise where you are ... (Practitioner).

Table 2: A technical term translated into the regional languages of the Western Cape

English	mask	cast	impression	immobilisation device
Afrikaans	masker	masker	afdruk	immobilisasie apparaat
isiXhosa	imasiki (a broken leg in plaster used as example in description)			izininto zokunqnda ukushukuma

A student who understood the term, describes how she would explain ‘beam’s eye view’ to a junior student:

I would definitely use the same language I’ve used like beam’s eye views ... [and] to explain the same thing [to a first year student]. Like for ‘beam’s eye view’ I would have to really simplify it and just tell her or he that beam’s eye view is the collimator ... is the source which is the machine looking down at the patient ... and from there definitely as time goes on she will know that’s beam’s eye view ... and she’ll also start using ‘beam’s eye view’ (Radiotherapy student).

Informal technical communication (jargon)

Embedded within the communication practices of radiographers is an informal technical language, a jargon that if listened to by a person outside the radiotherapy world, or even a fellow health professional in the same department, would not make sense. A jargon comprises terms that relate to a specific activity, profession or group (Coe, 1996). Much like slang, it develops as a kind of shorthand, to express ideas that are frequently discussed between members of a group quickly. For example, in the clinically-based observations of graphic planning and plan analysis interactions, the term ‘hot spot’ was frequently used by radiotherapists. Practitioners commented that they assumed that senior students were familiar with the use of the term as the plans were discussed and analysed. If the term ‘hot spot’ were to be formally defined it would refer to an area of high dose within the treatment volume. In the clinical context, interactions included questions and comments such as: ‘Is the hot spot okay?’ and ‘What is your hot spot?’. If a person, unversed in this technical jargon, were to be party to this interaction they would not understand its meaning, whereas the interaction described above progressed with the implicit understanding of all parties.

Radiotherapists switch between formal and informal lexis as various items are discussed and negotiated. Terms like ‘hot spot’ have become so prevalent that one of the practitioners interviewed claimed that: ‘*Hot spot* is professional language because you find *hot spot* in textbooks as well ... they talk about *hot spots* so it’s not jargon...’. There is thus some blurring between the formal and informal registers. Commonly used abbreviations, such as ‘ID2’, were also understood as formal technical terms:

that’s not jargon ... because ID2 is also a specific term that if you mention ID2 to anyone within radiotherapy they will know what you’re talking about ... because its published ... isodose equivalent dose [is] 2 Gray (Radiotherapist).

The above practitioner suggested that a term, once used in the professional or research literature, ceased to be jargon and entered the mainstream of formal technical language.

Jargon may cause a barrier to communication as many may not understand the specific references; this has advantages and disadvantages depending on the target audience and bystanders. For example, jargon can serve a euphemistic purpose when terms that are unknown to the patient can be less forceful than words that the patient would understand. As one of the novice radiotherapists pointed out:

That is also the good thing of using professional language because there are instances where you want to speak to a colleague but you can’t exactly because there’s a patient nearby ... so that if you use professional language, you might be speaking of a specific patient perhaps ... but the patient wouldn’t know that because you’re using certain terminology that the patient doesn’t understand at that point ... to make something clear to another colleague or something ... which is also the good use of professional language

(Radiotherapy student).

The registers depicted in the model of Figure 1 illustrate where formal and informal language predominates in each genre of professional communication. For each genre, bold type is used to illustrate the dominant register. In intra-professional communication, between radiotherapy practitioners, the formal terminology is less used in communicative interactions than is technical jargon, the informal genre. Whereas when interacting with the integrated treatment team (doctors, physicists, etc.) formal terminology predominates in the communicative interactions with technical jargon used less. Overlapping of genres occurs when colleagues in the team work closely together and are used to doing so. Technical jargon was found to be used among members of the team for ease of communication within the confines of the required work performance in the clinical environment. In extra-professional communication, where communication with patients was the dominant interaction commented on by all participants, the formal everyday language register predominates as informal everyday language would not necessarily be appropriate. Professional communication as a continuum of genres and registers is discussed in more detail in the last section of this paper and is illustrated very clearly in Figure 2 which details the journey of the novice radiotherapist in finding their 'professional voice'.

Learning and acquiring professional radiotherapy communication

In order to attain professional expertise and become a practitioner, the radiotherapy student has to master both the knowledge base (content domain) of the profession and its communication practices (rhetorical process) (Geisler, 1994; Norgaard, 1999; Bhatia 2008a). The professional communication model (Figure 1) shows how pedagogical communication mirrors professional communication. This is expected in a work-integrated learning environment, such as radiotherapy education. The academic hospital (workplace) is both a learning resource and a site of learning for the novice radiotherapist. In this environment, the communication practices used in various situations and applications are embedded and tacit. The communication practices identified in this study, particularly informal jargon, is contextually situated within specific tasks and practice. Barnett (2006: 146–148) describes 'situated knowledge' as that knowledge that is so contextualised is difficult to codify. This is true for the technical jargon that typifies the radiotherapy workplace.

Gee (1996) draws a distinction between acquisition (the natural, constructive process through which we know and use a language) and learning (a formal, non-constructive process). Using jargon appropriately (e.g. when to use 'sup' instead of 'superior') is acquired over time, rather than formally learned. Students and radiotherapists all commented on the process of acquiring communication practices in which the learned formal terminology moved into acquired informal jargon. It was also found that jargon could be more formally learned when it was explicitly modelled by radiotherapy practitioners. It was found that extra-professional communication (between radiotherapist and patient) was acquired predominantly through clinical experience and working within the integrated treatment team with the patients.

Being able to talk in the appropriate or required professional language enables students to develop a professional identity within their community of practice. A community of practice is 'a shared domain of human endeavour' (Wenger, 1998). Lave and Wenger (1991) claim that practitioners acquire the discourse of the community while working within its specific context. The students in this study both acquired radiotherapy communication practices by emulating the language of their radiotherapist colleagues and educators, and learned professional communication practice from their lecturers' explicit modelling of professional language both in the classroom and the hospital.

In search of the professional 'voice'

The communication practices of radiotherapists contain features that are unique to their work and interactions. Their communication practices are not static, but change, depending upon whether the radiotherapist is talking to fellow radiotherapists, other professionals in an integrated treatment team, their students, or their patients. The different audiences and purposes create the need for different communication genres, each with specific features. The features of the oral radiotherapy genres can be represented along two intersecting continua, with the x-axis representing the register

range and the y-axis representing the lexical range, as in Figure 3.

The resultant quadrants represent the main genres of communication. The communicating radiotherapist would locate him/herself in, for example, the ‘medico-technical’ quadrant when communicating with other health care professionals. When communicating within the profession, it is likely that the radiotherapist will position him/herself in the ‘jargon’ quadrant (which could assume a more or less ‘medico-technical’ or formal/informal version, depending on the familiarity of the group). In communicating with patients, the radiotherapist will position him/herself in the ‘polite’ quadrant – with some ‘medico-technical’ usage, depending on the language ability and educational level of the patient. The ‘slang’ quadrant will be avoided, as it is not part of the professional communication range. While slang might be part of the students’ communication repertoire, they would soon realise that it is not appropriate in either the classroom or the clinical environment. Dependent on the context of their interactions, radiotherapists would position themselves in the most appropriate place on that continuum. In doing so, they establish their professional communication practice and thus their professional voice. Students implicitly understand the quadrants, and how to position themselves appropriately:

Another thing that I think is important is ... even though you are professional it's always good to keep in mind that the language that you use with the patient won't always be appropriate ... they might not understand what you mean by your terminology ... keep as basic but yet to the point ... keep it very simple and for the patient to understand what you are saying (Radiotherapy student).

Conclusion

In conclusion, radiotherapists, students and the treatment team acquire and learn their communication skills through varied interactions in clinical and academic settings. Each member of the profession is an individual who needs to position him/herself appropriately in the quadrants of professional communication in order to communicate effectively. The students learn explicitly how to communicate professionally and are given opportunities to acquire communication practices in different contexts, as they find their own professional ‘voice’. Developing their own professional ‘voice’ will enable students to identify themselves as professional radiotherapists. It will also allow them to communicate effectively and appropriately with their colleagues and fellow professionals in the multidisciplinary, inter-professional workplace.

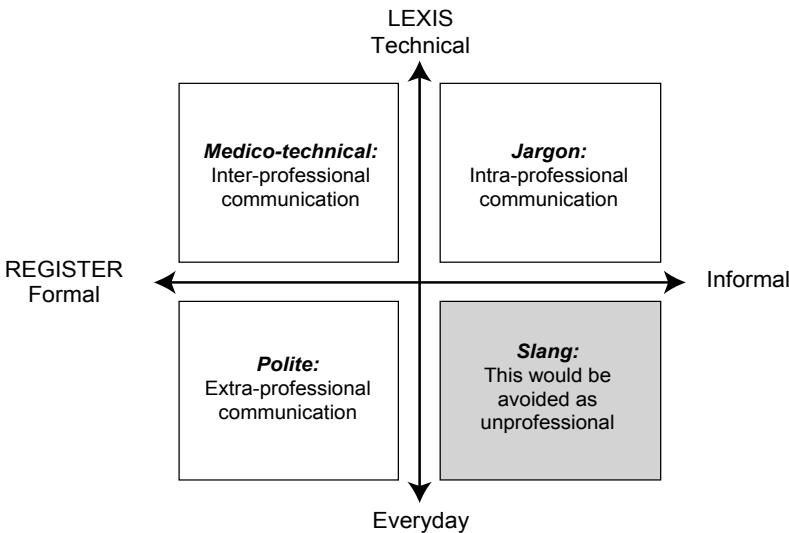


Figure 3: Professional communication along continua of lexis and register

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