COLLABORATIVE LANGUAGE TEACHING IN ENGLISH AND ENGINEERING STUDIES AT A TECHNIKON

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ABSTRACT

This mini-dissertation investigates the possibility of implementing Collaborative Language Teaching (team teaching) for the study of engineering and English at a technikon. This is done in an effort to address the issue of relevant ESL support offered to engineering students at a technikon. More specifically, it is an attempt to isolate those distinctive characteristics of technikon education and the study of engineering and English that might affect the implementation of team teaching at the Technikon Northern Gauteng.

Collaborative Language Teaching is discussed in terms of its origins in English for Specific Purposes (ESP) and Content-Based Instruction (CBI). These two proposals for language teaching both emphasise the central importance of relevance in second language (SL) learning. Team teaching is proposed as a possible strategy (procedure) for implementing SL syllabuses that can provide a visible connection between two distinct disciplines like engineering and English. Specific chatacteristics are also discussed with regard to the use of the strategy. It is indicated that, because this strategy is a departure from the familiar, some difficulty might be experienced in an attempt to implement it. The knowledge, attitudes and commitment of educators will have an effect on whether they would be willing to become involved in team teaching. It will further influence the quality of the team teaching relationship, and subsequently, the success of team teaching.

The empirical component of the study employs a questionnaire in order to determine the knowledge of Engineering and English lecturers about team teaching, as well as their attitudes towards the possible implementation of the strategy. Based on the findings of the literature review and the empirical study, the dissertation proposes general guidelines for the

implementation of team teaching at a technikon, as well as recommendations for the implementation of the strategy at the Technikon Northern Gauteng.

Keywords: technikon education; Engineering Studies; language support; English Second Language; second language teaching and learning; approach; methodology; procedure; Collaborative Language Teaching; team teaching; English for Specific Purposes.

OPSOMMING

Hierdie skripsie ondersoek die moontlike implementering van 'n spanonderrig-samewerkingsverhouding (*Collaborative Language Teaching*) in die taalonderrig van Ingenieurswese en Engels aan 'n technikon. Hierdeur poog die navorser om die relevansie van ondersteuning aan studente in Engels Tweede Taal genoegsaam aan te spreek. Die studie is ook meer spesifiek 'n poging om die eienskappe van technikononderrig, Ingenieurswese en Engels te bepaal wat moontlik 'n uitwerking kan hê op die implementering van spanonderrig aan die Technikon Noord Gauteng.

Die oorsprong van so 'n samewerkingsverhouding word teruggevoer na Engels vir Spesifieke Doeleindes (*English for Specific Purposes*) en Inhoudgebaseerde Onderrig (*Content-Based Instruction*), twee metodes in tweedetaalonderrig wat klem lê op die relevansie van kursusse in 'n tweede taal. Spanonderrig word as 'n moontlike strategie vir die implementering van tweede taal sillabusse voorgestel, omdat dit 'n sigbare verband bewerkstellig tussen verskillende dissiplines soos Ingenieurswese en Engels. Die spesifieke eienskappe wat 'n invloed kan hê op die gebruik van die strategie word bespreek. Daar word aangedui dat, as gevolg van die onbekendheid van die strategie, die implementering daarvan problematies kan wees. Die kennis, houdings en toewyding van dosente sal 'n invloed hê op hul bereidwilligheid om betrokke te raak by die gebruik van die strategie. Dit sal verder die kwaliteit van die spanverhouding bepaal, en sodoende ook die sukses van spanonderrig.

Die empiriese deel van die studie maak gebruik van 'n vraelys om die kennis en houdings van Ingenieurs- en Engelse dosente ten opsigte van die moontlike implementering van spanonderrig te bepaal. Daar word algemene riglyne voorgestel vir die implementering van die strategie.

Meer spesifieke voorstelle word ook gemaak vir die implementering van spanonderrig aan die Technikon Noord-Gauteng. Hierdie riglyne is gegrond op die bevindinge van beide die literatuurstudie en die empiriese ondersoek.

Sleutelterme: technikononderrig; Ingenieurswese; taalondersteuning; Engels Tweede Taal; die onderrig en aanleer van 'n tweede taal; benadering; metodologie; prosedure; samewerkingsverhoudings in taalonderrig; spanonderrig; Engels vir Spesifieke Doeleindes.

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CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 Introduction

South African language educators are faced with tremendous challenges in a period of change and transformation. One such challenge in a multilingual society is the provision of relevant language support. As English is employed as a language of learning at many tertiary institutions in South Africa (Jeffery, 1993; Ndebele, 1987; Wright, 1993; National Commission on Higher Education, 1996), large numbers of students at South African tertiary institutions are required to study through a language (English) which is not native to them. There are numerous accounts in the literature of a variety of learning difficulties caused by studying through a second language (Kotecha, 1991; Palazzo, 1989; Puhl & Swartz, 1989).

Technikons form part of the tertiary education sector in South Africa. In particular, technikons are intended to prepare students for the practice, promotion and transfer of technology within a specific vocation or industry (Department of Education, 1996). In others words, technikon instructional programmes should be aimed at meeting the needs of industry or the specific vocation concerned. The specialised nature of the programmes offered within technikon education (Pittendrigh, 1988; Certification Council for Technikon Education, 1996; National Commission on Higher Education, 1996), serves as justification for the development of approaches and methods to second language (SL) teaching and learning directed specifically at the technikon context.

1.2 Statement of the problem

Tertiary study within the engineering[1] field has in the past proved to be highly demanding academically, especially for underprepared students. At the Technikon Northern Gauteng, students gain admission to a number of engineering diplomas with relatively low matric scores (including scores for English). These students are required to enrol for a 6-month bridging programme known as the Potential Development (PD) Programme before they are admitted to the specific engineering diploma. The PD Programme includes a Lifeskills subject which consists of three main components: thinking skills, study skills and English Second Language (ESL) development. The ESL component is based on principles pertaining to English for Specific Purposes, English for Science and Technology, and Task-based Language Teaching. In other words, the focus of the course is on how English is used to complete specific tasks within the context of Engineering Studies. Although the language practitioner offering this course attempts to focus on language issues relevant for engineering, there appears to be some difficulty with the actual transfer of knowledge and skills from the language context to the engineering context. A possible explanation for the existence of such a barrier could be the language practitioner's own inadequacies with regard to the field of engineering, since students eventually address conceptual issues which require engineering expertise, and this cannot be supplied by the language practitioner.

The Department of Languages at the Technikon also offers the subject "Communication in English" to students. This is, however, a subject that is focused more on the study of general communication theory than on specific ESL strategies.

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[1] The term "engineering" is only capitalised in the case where it is considered as a proper noun. In all other instances, lower case is used in this study.

Kotecha (1991) and Kotecha and Rutherford (1991) note that the study of engineering calls for the development of very specific language and thinking skills that cannot be facilitated through language courses of a more general nature. These authors suggest a Collaborative Language Teaching approach to the teaching of English in engineering. This approach addresses two fundamental issues in the context of learning English for engineering purposes: the relevance of SL learning and the specialised abilities and knowledge of both the language practitioner and subject specialist. It aims to integrate two subjects (English and Engineering) through productive collaboration, taking the shape of team teaching the same group of students in the same classroom at the same time. The roots of this approach can be found in the idea that co-operation might be a more productive strategy to be employed in SL teaching and learning than competition (Nunan, 1992). In addition, this approach exploits principles of English for Specific Purposes (ESP), advocated by H.G. Widdowson. Widdowson (1978:16) emphasises the importance of using meaningful contexts in SL teaching and learning. He suggests that a second language should be associated with those areas of use which are represented by the other subjects on the curriculum. This provides us with the most certain means we have of teaching the language as communication. For Hutchinson and Waters (1987), a very important feature of English for Specific Purposes is the prominence given to the needs of the learner. ESP is, therefore, based on a learning-centred approach rather than a language-centred approach.

Even though the researcher is of the opinion that Collaborative Language Teaching is a possible solution for breaking down the barrier between English and Engineering, the actual implementation of a collaborative strategy depends on the working relationship between the instructors involved (Shannon & Meath-Lang, 1992). Kotecha, Rutherford and Starfield (1990) and Shannon and Meath-Lang (1992) note that the

implementation of Collaborative Language Teaching calls for a close collaboration between language practitioner and subject specialist. The development of such a relationship depends to a large extent on whether people have enough information about the approach, on their attitudes towards it, and on whether they would be prepared to commit themselves to such an undertaking. In the context of Engineering Studies at the Technikon Northern Gauteng it would be a logical and necessary exercise to investigate the knowledge of engineering and English specialists towards the possible implementation of Collaborative Language Teaching, as well as their attitudes towards the strategy. A crucial concern is, for instance, whether subject specialists in the Faculty of Engineering and English lecturers in the Department of Languages perceive Collaborative Language Teaching as a viable strategy for teaching and learning English in the engineering context.

This mini-dissertation is, therefore, primarily an attempt to provide guidelines for how Collaborative Language Teaching can be implemented in the Faculty of Engineering at the Technikon Northern Gauteng.

The problem questions to be investigated are the following:

- What are the specific characteristics of technikon education and the study of engineering and English at technikon that are likely to affect the implementation of Collaborative Language Teaching?
- What are the characteristics of Collaborative Language Teaching?
- What knowledge do engineering and English subject specialists have of Collaborative Language Teaching and what is their attitude towards it?
- How can this approach be implemented at the Technikon Northern Gauteng?

1.3 Aims of the study

The aims of the study are to:

- determine the specific characteristics of technikon education and the study of engineering and English at technikon that will affect the implementation of Collaborative Language Teaching;
- establish the characteristics of Collaborative Language Teaching;
- determine English and engineering subject specialists' knowledge of and attitudes towards Collaborative Language Teaching; and
- propose guidelines for how this approach could be implemented in the Faculty of Engineering at the Technikon.

1.4 Method of research

A number of problem questions have been identified in the formulation of the research problem. By means of a comprehensive survey of the available literature, this study attempts to determine the specific characteristics of the study of engineering and English at technikon. It also explores the characteristics of Collaborative Language Teaching (team teaching) in order to situate this strategy in the wider context of language teaching, and in order to provide a rationale for the use of the strategy. The empirical component of this research is a case study conducted at the Technikon Northern Gauteng that attempts to determine engineering and English lecturers' knowledge of team teaching, as well as their attitudes towards the use of the strategy. The research instrument used for this purpose is a structured questionnaire.

1.5 Outline of the study

Chapter 2 is an exploration of the nature of technikon education. It further focuses on the study of engineering and English at a technikon, and uses the context at the Technikon Northern Gauteng as practical illustration of the relationship between the two disciplines.

Chapter 3 reviews literature on Collaborative Language Teaching in terms of providing a sound rationale for the use of this strategy. It also focuses on specific role changes implied by the strategy, the advantages and disadvantages of team teaching, and the characteristics of successful team teaching.

In Chapter 4, an outline of the research methodology for the empirical section of the study is provided. Chapter 5 focuses on the presentation of the results of the questionnaire, as well as the interpretation of the data.

The sixth chapter provides general guidelines for the implementation of team teaching, as well as specific recommendations on how this strategy can be implemented in the Faculty of Engineering at the Technikon Northern Gauteng.

The conclusion to the study (Chapter 7) provides a summary of the most significant findings of the literature survey and the empirical study, and shows how the specific aims of the study have been achieved. It also provides recommendations for further research that can be related to this study.

CHAPTER 2

ENGINEERING AND ENGLISH STUDIES AT A TECHNIKON

2.1 Introduction

This chapter is an exploration of what can, at this point in time, be taken to be distinctive characteristics of technikon education. It further seeks to situate technikon education within the current education system in South Africa. Since all tertiary institutions could be seen to have a unique character and specific features distinguishing them from other institutions, current educational structures and practice relating to Engineering Studies and English at the Technikon Northern Gauteng are used in order to illustrate the relationship between the two disciplines. Where possible and deemed necessary, these practical examples are related to the wider context of technikon education in South Africa. The chapter also includes sections on engineering courses at technikon, the linguistic and cognitive demands of the field of engineering, and English courses at technikon. Lastly, English Second Language users and the language problems they experience, and ESL intervention at the Technikon Northern Gauteng are discussed.

2.2 The nature and context of technikon education in South Africa

Technikons came into existence in South Africa in the late 1970's. At that time there was an international need for more technically oriented education. This resulted in the establishment of, for instance, polytechnics in countries like Britain, Russia, Kenya and Nigeria, *fachhochschulen* in Germany and technikons in South Africa and Israel (Van Staden, 1998). All these different types of institutions focus on high quality technical/technological education with the aim of preparing

students for specific vocations. In South Africa, it was decided to convert the already established Colleges for Advanced Technical Education (CATE) into even more advanced technological institutions that, in future, were to be known as technikons. The establishment of technikons was, therefore, partly a response to international trends in higher learning. More importantly, however, this type of institution was supposed to supply the South African vocational market with the necessary expertise and skills in order to meet an ever-increasing demand for practically skilled workers. Technikon education was, therefore, aimed at offering training in the application of knowledge, rather than in basic knowledge itself (National Commission on Higher Education, 1996). In the period of time from its inception in the late 1970's, technikon education has been established as a vital component in South African tertiary education.

For many years, tertiary education (consisting of technikons and universities) has been part of an entrenched, exclusive paradigm in South African education:

> Traditionally in South Africa, tertiary or higher education has been regarded as the exclusive domain of universities and technikons, while other institutions offering post-school leaving certificate programmes have been seen as offering post-secondary education (National Commission on Higher Education, 1996:86).

Traditional providers of higher education in South Africa have been modelled to a large extent on world-wide tradition and developments in higher education. Providers like universities and technikons were, therefore, supposed to respond to both national needs and international trends, and true to a philosophy of segregation and fragmentation,

developed into relatively independent types of tertiary institutions. This state of affairs further resulted in a situation where the true purpose of **having** providers of higher education was quite naturally distorted into the notion that universities and technikons owned the exclusive right to fulfil this function. Generations of learners and educators in South Africa accepted the *status quo* either without question, or with a basic inability to alter the system.

At present, however, South Africa is in the process of major political, social and economic transformation, including changes to the educational system. The report of the National Commission on Higher Education (1996) provides a new perspective on the nature of higher education in South Africa. In contrast to the familiar institutional or sectorial definition of higher education, it proposes a programme-based definition. Higher education programmes are, therefore, "all learning programmes that lead to the award of a qualification more advanced than the further education certificate" (National Commission on Higher Education, 1996:10). Within this new definition, a number of providers can be identified that offer higher education programmes: universities, technikons, colleges of education, nursing and agriculture, and some technical colleges, all offer programmes that go beyond the further education and training certificate.

Apart from the attempted co-ordination of higher education through a National Qualifications Framework (NQF), a new educational approach has been approved for the whole education system. Outcomes-based Education (OBE) subscribes to a learner-centred approach to teaching and learning that focuses on the development of integrated competencies in learners. The current preference for OBE can be seen as a reaction against the teacher-centred and teacher-dominated approach which had for many years been the accepted norm in South African classrooms. A major consequence of educational practice in teacher-centred

classrooms, was that the importance of **knowledge** was emphasised in the past, while skills and attitudes (values) were often neglected. In an OBE approach, teachers are compelled to focus on both the knowledge and how the knowledge is used to achieve a specific outcome. While OBE makes provision for achievement descriptors of a more specialised nature, in other words, specific outcomes for different learning areas, it is also an attempt to integrate a number of **Critical Cross-field Outcomes** into all learning programmes (South African Qualifications Authority, 1997:6). This second type of outcome is generic by nature, and such outcomes are supposed to underpin learning in any specific learning area. One such generic outcome that is of specific relevance to this study, is the learner's ability to: "Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation" (South African Qualifications Authority, 1997:7). A very important implication of the prominence awarded in OBE to the **concept of integration**, is that because critical outcomes are supposed to be included in learning programmes in all learning areas, it seems as if the notion of add-on support and development courses in tertiary education could be something of the past. It is, therefore, crucial at this stage for practitioners involved in academic development to investigate strategies for supporting mainstream staff in the endeavour of integrating generic outcomes into their subjects.

Traditionally, university education was considered to be the more "prestigious" option in higher education, while technikon education, probably because of its practical and technical orientation, has not enjoyed the same status as its mainly theory-based counterpart. According to the National Commission on Higher Education (1996), the "binary distinction between the two sectors is based on the universities' role in general formative and professional education and basic and applied research, and the technikons' role in vocational and career

education and 'product-related' research and development." As was previously suggested (National Commission on Higher Education, 1996:86), colleges of education, nursing and agriculture, and technical colleges have never really competed on the same footing with universities and technikons in terms of being regarded as part of tertiary education. The types of qualification offered by these institutions also do not provide immediate access to the more "prestigious" job environments or occupations. The fragmented nature of higher education that was sustained through the accepted separate development of institutions and prominence awarded to more "prestigious" types of qualification can, in part, be blamed for current imbalances in the South African job market. Although some of the proposed changes (with specific reference to a "Unit Standards approach") are perceived as a threat to institutional autonomy by some educationalists in South Africa, one of the major purposes with the new system is to make tertiary institutions more publicly accountable. A potential positive outcome of these changes might be that the previously mentioned vocational imbalance is eradicated over time, and that tertiary institutions become more market-oriented and responsive towards the human resource needs of specific vocations in South Africa.

Although there are many instances where technikon and university educational programmes seem to overlap regarding similarities in the knowledge and skills offered to learners, it will be very difficult (and perhaps unnecessary) to attempt to eliminate the traditional distinction between the two. The present development of a National Qualifications Framework (NQF) is an attempt at co-ordinating all education (including tertiary education) in terms of portability of credits and the recognition of all relevant learning, and not at fusing different types of tertiary institutions into one. Although it is expected that all educational programmes will have to be recognised and approved by the South

African Qualifications Authority (SAQA), this does not imply that the types of programmes offered by different types of tertiary institutions need to converge to ensure portability of credits. Since technikons respond to very specific vocational needs in the South African job market, their focus on the **practical application of knowledge** in learning programmes remains a crucial component in the South African educational context. Such programmes are indispensable to South African education, since they emphasise the acquisition of "dynamic" knowledge and skills that learners use for practical problem-solving in the work situation.

A brief example from the field of language teaching would suffice to highlight a very basic difference between technikon and university learning programmes. University language courses often need to respond to a tradition that awards prominence to language learning as a scholarly and artistic activity. Many universities do, therefore, accept the traditional prominence of literature in language studies, which makes decisions about focus and weight of components included in such courses a difficult issue.

Students that enter language courses at university do so for various reasons. Some students enrol for a language course solely on the basis of a "love" for the language and its creative use. Others choose a language course because they need a "filler" subject to make up the remainder of a specific course. Many choose language with the purpose of becoming language teachers. If differing student needs are to be met, there is an obvious demand for language courses of a more general nature (at least in the pre-graduate years) at university. The necessity of comprehensive training for language teachers further serves as justification that studying literary theory on the one hand and learning about language as a complex system of rules on the other, is a

worthwhile (and necessary) endeavour. Such students should, after all, be able to instil an understanding of and possibly a love for literature in their future learners. They should further understand the basic structure and function of the target language to such an extent that they could generate creative learning opportunities for their future students. Theoretical issues regarding an analysis of the structure of language and how language is used feature prominently in university language courses. After the completion of a first degree in language, these students are usually expected to enrol for an HED diploma where they are supposed to acquire skills and techniques in practically teaching the language.

Although universities have also responded to specific vocational language needs in pre-graduate language courses (English for Law students, for example) in the past, this is not the main emphasis of language courses at university. It would be fair to say that the main focus of language courses at university is learning more about the language and its literature.

Within the technikon environment, however, a focus on knowledge about the structural aspects (grammatical rules, for example) of language is untenable (with the exception of specific diplomas offered in language practice), since emphasis is given to how the language is used for a specific vocational purpose. The often clearly demarcated nature of the different occupations that technikon students would pursue after the completion of their courses, dictates to a large extent what communicative abilities would be expected of them in specific contexts (in Engineering Studies, for example, above average technical report writing skills are required).

In their commitment to satisfy the need of preparing students **holistically** for the practice, promotion and transfer of technology within a specific

vocation or industry (Department of Education, 1996), technikon courses are held accountable by the vocations they serve. The basic difference can, therefore, be located in the fact that, whereas a more "general" language programme focusing on the merits of the language itself is acceptable in university education, language programmes at technikons generally focus on providing learners with subject- or diploma-specific language skills they could use in specific occupations.

Since technikons accept as part of their responsibility to prepare students adequately for the highly competitive and demanding "world of work":

> ... their programmes and their teaching style are required to be career-orientated and consequently, as might be expected, they have given considerable attention in their curriculum design to methods of obtaining information on the needs of commerce and industry as well as employment prospects for persons qualifying on their courses (Pittendrigh,1988:268).

Pittendrigh's (1988) survey of technikons in South Africa found that, although it can be expected of technikons to be highly regarded in terms of the development of alternative teaching methodologies and styles, this appears not to be the case. The fact that "in many instances ordinary class-teaching methods were being used up to higher diploma levels and students were merely being coached to pass the examinations" (Pittendrigh, 1988:275), is to say the least, disconcerting. It should be noted, however, that with the impetus provided by recent proposed changes in higher education, an issue like "flexible modes of instruction" is at last receiving the priority treatment it deserves within technikon education (an initiative like the DEFROST project at the Vaal Triangle Technikon seeks to address this problem specifically [see Coetzee Van Rooy, 1997]). What is of crucial importance for the present, is that the

impetus to develop alternative teaching strategies and styles comes from the latest *White Paper on Education* (Department of Education, 1997), with specific reference to the "massification" of tertiary education. Lecturers are required to adapt their teaching strategies and styles in order to accommodate different learning styles and larger groups of students. This obviously has important implications for teaching in general, but more specifically for teaching English as a second language, since the accommodation of larger groups of students within the framework of exposing them to "language in use" becomes increasingly difficult.

This survey is further of interest in terms of Pittendrigh's finding that there is an acute awareness of the importance of "enrichment" courses at technikons. Courses that focus on personal development - with specific reference to communication and computer literacy - should form part of technikon learning programmes. Within the context of providing relevant education to technikon students, it would be difficult not to accept Pittendrigh's argument in terms of the importance of different, related needs that should be addressed. It should also be obvious that the needs of specifically commerce and industry - including their language and communication needs - cannot be ignored, since technikon education aims to prepare students for successful integration into this paradigm. Technikon students, therefore, need to be able to live up to the communicative challenges which will inevitably confront them in, e.g. planning sessions, problem-solving sessions and general communicative exchanges within various occupations.

Even though a number of changes have been proposed with regard to the structure and function of tertiary education in South Africa, the author cannot see that the role of technikons will change drastically. According to Van Staden (1998), there is evidence of a transfer in focus from the

acquisition and development of basic knowledge (basic academic training), to a focus on occupational training in government educational policy. Technikon education is, therefore, still a vital component of higher education addressing a very specific need in the South African job market.

While keeping in mind that technikon education prepares students for specific occupations, the next section elaborates on the nature of Engineering Studies at technikon.

2.3 Engineering Studies at technikon

Diploma courses in engineering at technikon prepare students mainly for becoming engineering technicians. After the completion of such a diploma, a student can register with ECSA (the Engineering Council of South Africa) as an engineering technician. After the completion of an additional year of study (which is largely theory-based), students can qualify for either a higher diploma or a B-Tech degree, depending on what is being offered in the specific engineering field. Degrees such as B-Tech, M-Tech and D-Tech degrees were introduced recently in technikon education. At the completion of a higher diploma or B-Tech degree, students can register as technologists. It is, however, very difficult for technikon engineering students to be registered through ECSA as professional engineers, even with a higher diploma or B-Tech degree.

The most basic difference between Engineering Studies at technikon and at university is that, whereas students at technikon are exposed to a large portion of practical application of theory, university engineering students focus primarily on theoretical and managerial aspects of engineering. According to Van Staden (1998), A- and B-type subject contents (focusing on mastering of specific skills and techniques, and the

application of existing knowledge and technologies) account for up to 90% of technikon programmes, while C-type contents (focused on the mastering of a fundamental theoretical basis and the inculcation of a basic scientific way of working and thinking) make up only a very small percentage (10%) of these programmes. The compilation of technikon programmes stands in direct contrast to university programmes that include up to 50% C-type contents, and only a 10% practical component. Additionally, technikon education makes use of a concept known as experiential training or co-operative education. Van Staden (1998:80) states: "Experiential training puts the learner in contact with a specific profession and ensures first-hand knowledge which is important for the success of technological training." As a prerequisite for receiving a diploma, students in engineering at technikon therefore need to complete a full year of in-service training with an approved employer.

2.3.1 Engineering Studies at the Technikon Northern Gauteng

The Faculty of Engineering at the Technikon Northern Gauteng offers students the opportunity to qualify for a number of engineering diplomas. These include National Diplomas in Civil Engineering, Building Sciences, Electrical Engineering, Mechanical Engineering, Chemical Engineering, Analytical Chemistry and Water Care. Students can now also enrol for B-Tech, M-Tech and D-Tech studies in specific engineering fields.

In 1981, the Engineering Faculty identified an urgent need for supporting students to make a successful transition from a Standard 10 (Grade 12) level to the first year of engineering study. It was decided that a bridging course (known at the time as a pre-technician course) had to be introduced in an attempt to offer relevant academic support to underprepared students. In an unfortunate development, this programme was discontinued at the end of 1985, mainly due to financial reasons

(the state does not provide funding for bridging courses). After the discontinuation of the programme, there was a dramatic decrease in the percentage of students who passed their first year on first attempt. It was, therefore, decided that because of the crucial importance of this programme in offering support to underprepared students, the programme had to be reintroduced in 1989 as the "Potential Development (PD) Programme". When taking into account that admission requirements for engineering are not very strict in order to provide increased access to the field (only a senior certificate with at least an E-symbol in English and Mathematics and/or Physical Science is generally required), the value of such a course cannot be disputed. At present, the bridging programme consists of a number of different engineering subjects relevant to the specific field. It further includes "service" subjects like Communication and Lifeskills. The engineering related subjects are neither a repetition of senior certificate subjects, nor part of an extended first year of study, but rather an attempt to fill the gap between Standard 10 (Grade 12) and S1.

Lifeskills was introduced in 1992 and mainly comprises study skills, thinking skills, and ESL development. The subject was included with the dual purpose in mind of developing the academic potential of underprepared students and to address needs of a more personalised nature. An extremely important concept that forms part of the teaching methodology of a lifeskills philosophy, is that lecturers (facilitators) refrain from accepting responsibility as the "sole source of information". Seeing that this is a skills-based subject, most learning takes place on an experiential basis. Facilitators, therefore, refrain from "teaching" in the traditional sense where teachers often dominate learners, and rather strive towards facilitating the acquisition of knowledge, skills and attitudes that make independent and responsible learning possible. This paradigm where learners are treated as mature adults, is also the learning

context for the ESL component of Lifeskills. It is, however, never merely assumed that learners would develop certain skills on their own through exposure to an academic environment. Although it can be expected of learners to accept responsibility for their own learning at this level of education, they are supported throughout this programme to grow into accepting responsibility for their own learning and face the consequences of their actions and decisions. In much the same manner the ESL component attempts to create a more critical awareness about the purpose and use of the target language (in this case English), and encourages students to accept responsibility for their own language development.

An important feature of the Lifeskills subject is that it is needs-based in the sense that a comprehensive needs assessment is conducted at the beginning of each semester in order to determine student needs. This is also done to ensure that changing needs are addressed on a continuous basis. Futhermore, the subject is in the process of being refocused on the critical outcomes of Outcomes-Based Education (OBE).

After a recent review of the effectiveness of the six-month PD programme, the Faculty of Engineering has decided to extend the programme to a generic full year programme, with the subject Lifeskills featuring as an essential component of this programme.

2.3.2 The linguistic and cognitive demands of Engineering Studies

Van der Merwe (1997) mentions that in both the English Literary Skills Assessment (ELSA) and the Third International Mathematics and Science Survey (TIMSS), South African students performed way below average. One could safely say that it would be risky to make assumptions about

the scientific literacy of ESL students entering technikon education, based on matriculation results. As Kotecha *et al.* (1990:216) maintain:

> It would seem that students' scientific knowledge is not very well developed by the time they leave school.

The linguistic demands of Engineering Studies have often been neglected by engineering specialists in the past, probably because of the assumption that students who gain access to tertiary education should at least be proficient communicators. Kotecha and Rutherford (1991) point out this has proved to be a dangerous assumption in the South African context of tertiary education.

Because of their inadequate background in English, and by implication, science and technology studied through the medium of English at school, underprepared students appear to experience difficulty to enter the "conceptual reality" of engineering and science. Many students who enter technikon education have a very weak grasp of scientific terminology and concepts, and experience very real problems with scientific modes of thinking (e.g. the inability to make sensible inferences from observation, a key mode of thinking in science and technology).

Kotecha (1994) notes that engineering has often been described as "a profession in which knowledge of the mathematical and natural sciences is applied to the materials and forces of nature, for the benefit of humankind." This knowledge should be applied successfully within a number of different contexts, an aspect that presupposes an acute ability to solve problems. The productive use of language in terms of achieving high levels of understanding can be directly related to the ability to think critically in any field of study (Adamson, 1993). The abilities to analyse, synthesise and evaluate information all form part of critical thinking.

Being able to think critically is a basic prerequisite for solving problems in engineering. The negative impact of a poor command of English on learners' ability to engage in higher order thinking is obvious. It is, however, not only the ability to solve problems that is central in Engineering Studies, it also requires the clear presentation of probable solutions to such problems. The effective transmission of information in both written and oral modes is crucial for the practising engineer/engineering technician. Effective writing and speaking strategies and skills are required in order to be successful in engineering, since the presentation of ideas and conceptions should more than often be "sold" to colleagues who have to be persuaded of its worth (Kotecha, 1994:vi).

Although it has often been debated whether there are grounds for distinguishing different "types" of English, and, in this case English for engineering and science, one might be missing the point in getting too involved in this argument. Perhaps the issue is not whether one can *make* a case for a linguistically distinct English for engineering and science (it is obvious that in terms of specific terminology, for example, one can distinguish this field from other disciplines), but rather whether there are aspects of how English is used in engineering that could be isolated and used as a focal point in language course design. According to Kotecha *et al.* (1990:212-213), it is fundamental to take note of Strevens' (1980) distinction between the different functions of scientific English and technological English. According to them, scientific English uses general and scientific concepts including both a philosophical and methodological orientation. In addition, scientific English makes use of international scientific terminology. Technological English, on the other hand, "uses less of the general conceptual language, is more concrete and less philosophical but uses the specialised vocabulary" (Kotecha *et al.*, 1990:213). Because of its technological orientation, Engineering

Studies at Technikon Northern Gauteng uses mainly technological English.

The language and communication requirements for Engineering Studies at technikon are obviously grounded in the discernible characteristics of the discipline. In an attempt to provide relevant ESL support for engineering, it is essential to have an understanding of the target language behaviour that is expected of engineering students at technikon (and in the workplace). Similar to other fields of study, engineering requires of students to have a firm grasp on the general use of English. However, more specific language skills have been mooted with relation to engineering. Kotecha *et al.* (1990) emphasise the importance of the comprehension and use of "logical connectors" (terms like "although" [contrast]; "because" [causality]; etc.) that are essential for complex thinking and creative problem-solving in science and technology. In this discipline, the effective gathering and synthesis of information, and the clear and concise presentation of such information in the written mode seem to be crucial. For engineering technicians, the writing of technical reports, for example, is an essential language skill to command. This writing skill would require a thorough understanding of how to use, for example, the passive voice in English. Other important skills would include, for instance, the ability to analyse and describe processes in engineering (aided by using flow-charts, for example), and the ability to integrate visual information like photographs, diagrams, tables, flow-charts, and graphs in the understanding of accompanying text (Kotecha, 1994).

The academically responsible English Second Language (ESL) course designer is compelled to take note of the characteristics mentioned above. Any ESL course that can successfully address these demands of

the engineering field will have come a long way in an attempt to solve the ESL difficulties of engineering students.

2.4 English at technikon

English Second Language support has for many years been an integral part of technikon education. As a result of a language policy that recognised only two languages, English and Afrikaans, as official languages in South Africa in the past, many students at technikons were (and still are) expected to study in a language not native to them. Nothing much has changed in terms of this situation. Although eleven languages are presently recognised as official languages in South Africa, it might be unjust at this stage to expect drastic changes to the languages of learning that are used for higher education. The only notable change is that some of the traditional "Afrikaans" technikons have become more accommodative towards offering classes in English. This change to becoming dual-medium institutions (offering classes in both English and Afrikaans) obviously has had no positive effect on the previously neglected languages that are still marginalised with regard to tertiary education. Although there are genuine efforts (the formation and work of LANGTAG, for example) to develop all languages for academic study, it should be accepted that such efforts are part of a longer term investment towards a true culture of multilingualism in South Africa. It is furthermore quite evident that the practical value of English as a *lingua franca* cannot be ignored, and that this function of English will most probably be reinforced by its continuous use as a language of learning in tertiary education. English has been used for many years as the only language of learning at traditionally "disadvantaged" tertiary institutions.

While there is no shortage on literature elaborating on the English Second Language problems of students, such problems are rarely related to the

ESL proficiency of teachers/lecturers. It is important to note that, because the identification and "treatment" of second language (SL) problems usually focus on students who are second language users of English, the matter of many educators who are also not native users of English and who experience similar problems is neglected. The matter of effective language intervention is, therefore, further compounded by the fact that lecturers are often not proficient in English. While students might be exposed to an environment that is conducive to becoming more proficient in English in the language class, this environment does often not extend to the subject classroom (see Jurgensen, 1996:1-2).

Although SL development at technikons has for many years followed tradition in subscribing to a view of "standalone" language courses for successful language intervention, it has recently become more closely associated with the general movement of Academic Development (AD). One of the key concepts underpinning AD in South African higher education today, is the exploration of how key academic skills and competencies (including language skills) can be successfully integrated into any specific curriculum in order to minimise the possibility of insufficient transfer of skills and competencies (Walker & Badsha, 1993).

Even though the idea of integrating ESL skills into mainstream subjects has been introduced through AD, English is still offered as a separate "service subject" at most technikons. Because of the multitude of different diplomas offered by technikons, language course design is usually diversified into addressing the needs of specific disciplines. Most language courses are, therefore, based on either English for Specific Purposes (ESP) or Content-Based principles. The tremendous effort involved in developing and maintaining any number of specific purposes language courses is obvious. Specific purposes courses give priority to a number of converging needs (most notably that of the learner, the

academic environment, and the workplace). While some needs recur year after year, others become less important. New needs can also appear, and hence demand the constant reassessment of needs.

ESP course developers/practitioners are expected to work not only within close proximity of the academic needs and demands of specific specialisms, but also towards the requirements of commerce and industry. Technikon English courses attempt to focus on the communicative aspect of language within a specific discipline, in other words, how the language is used for communication within a specific specialism. To ensure to some extent that specific purposes courses are effective and stay relevant to the learners they serve, teachers need to maintain a high level of commitment to the purpose of such courses. Teachers who participate in teaching ESP courses should at regular intervals be involved in assessing any changes in the communicative demands in commerce and industry, and in the specific discipline within its academic context. One of the most difficult issues with which the ESP teacher needs to contend in this context, is that, to a large degree, he/she will be dictated to by non-language specialists as to what should be included in the language course.

There are very few exceptions to the situation described above in terms of the nature of English courses offered at technikon. Perhaps the most notable exception is where technikon language departments offer an English course that focuses on the merits of the language itself. For example, English is offered as part of a specific diploma for training language practitioners at some technikons. Such courses are, however, in the minority.

Although the "ideal" ESL course at technikons will most probably need to be developed along the lines of communicative ESP, the practical reality

of the classroom situation at most technikons makes it very difficult to create opportunities for students to be exposed to "language in use". Whereas the content of what is being offered in the English classroom might be relevant, opportunities for "negotiating meaning" are few (a number of other problems with ESP and Content-Based Instruction (CBI) and a possible solution to some of these are discussed in detail in Chapter 3.).

2.4.1 The English Second Language user at Technikon Northern Gauteng

Because of the variable nature of the student body at South African technikons, it would be difficult to provide an accurate profile of a SL learner at a technikon. It will, however, suffice for this study to attempt to isolate certain general features characterising ESL students and language problems they experience with specific reference to the Technikon Northern Gauteng.

Students who enrol at the Technikon Northern Gauteng are mostly Black students who have been exposed to the old DET education system. Even though one integrated education system is supposed to exist in South Africa today, the envisaged transformation of education has only effected surface changes to structures in many instances, and does not sufficiently address the level of complexity of prevailing ESL problems in South African education. Many of these problems are developmental by nature, and to address them adequately require considerable time and effort. Most of the students who study at Technikon Northern Gauteng come from areas where nothing much has changed in terms of the provision of quality learning experiences. In addition, a situation where the teachers teaching in these areas are themselves SL users of English, and sometimes not proficient users of the language, prevails. Serious problems with the proficient use of English as a second language do,

therefore, still frequent the Technikon Northern Gauteng context (and will for a number of years to come).

The compilation of the student body is extremely diverse in terms of ethnicity, and therefore, the native languages used by the students differ considerably. All students are required to study through the medium of English, a second language to most of them. Because many of these students have been exposed to what Grobler (1991) refers to as "survival teaching" at school, they lack effective language and study strategies for extracting and interpreting information. The formal didactic teacher-centred approach followed in many DET schools (Grobler, 1991:6) did not encourage critical enquiry on the students' part, and consequently resulted in many students using memorised knowledge in a passive manner (mostly regurgitating information in tests and examinations). Teaching strategies that encourage rote-learning and memorisation often result in dependent learners trained to think in a specific way. It is, therefore, frequently necessary for students to "un-learn" previous learnings and study techniques before they can cope successfully with the demands of technikon education. It is furthermore not surprising that many students struggle in a cognitively demanding academic environment. A poor command of language obstructs clear comprehension of concepts, and results in learners having difficulty to perform higher order cognitive functions in the language. Problem-solving, therefore, becomes very laborious. As Adamson (1993:112) notes: "The ability to critically analyse and judge academic material, then, may be the most difficult task for many ESL students."

Pittendrigh (1988) mentions that in order to gain entry at a technikon, students are generally only required to obtain a senior certificate and not a matriculation exemption. The entry requirements at technikons are, therefore, not as strict as those of universities. Although Pittendrigh

notes that a relatively high percentage of students entering technikon education do so as their first choice, very few top students (with a matriculation aggregate A or B) enrol for technikon education. Students at Technikon Northern Gauteng can, for example, gain access to engineering at the Technikon with an aggregate E matric symbol. Apart from not passing their matric year with high marks in Science and Mathematics, many of these students experience immense problems to learn science in a second language (English) of which they generally have inadequate control (only an E-symbol is required).

In light of the above discussion, it is not unexpected that many underprepared students gain access to technikon study. According to Mohapi (1997), many of the students enrolling at the Technikon Northern Gauteng come from a disadvantaged background. Apart from having to cope with a new social environment, these students also have to cope with an academic environment where it is expected of them to be mature learners that command the necessary skills to study independently, have an adequate control of advanced cognitive skills, and be proficient in English as a second language. It would be an understatement to say that the previous education system, especially in underprivileged areas, did not give enough attention to the development of critical, individual thinkers.

Van der Merwe (1997) states that, as a result of the disadvantaged background to which so many of our students were exposed for the greater part of their lives, it is not uncommon to find a lack of familiarity with technology. Students arrive at the Technikon with only a vague idea of technology and what they wish to study, and often enrol for a course because it is the only course where they are accepted.

To complicate the matter even futher, many students at Technikon Northern Gauteng appear to believe (personal observation) that because of their "extensive exposure" to English as a second language at school, they are supposed to be able to cope successfully with the language demands of tertiary study. The problem with this view, as Kotecha *et al.* (1990) point out, is that many underprepared students come from backgrounds where their teachers also lack proficiency in English. Such teachers often feel compelled to switch to the vernacular in class, a strategy that frequently leads to the complication and misrepresentation of scientific concepts since, as Kotecha *et al.* (1990:216) note: "... scientific and technical discourse is itself not well-established in the vernaculars". It is not surprising that Grobler (1991:4) maintains that, "the way in which our students were taught and their experiences of language in general affect their ability to deal with the level of work at the Technikon".

A number of specific problems with the English language system and how it is used have been identified. For example, Grobler (1991:7) mentions that, in particular, students at Technikon Northern Gauteng experience problems with first person singular marking of verbs, limited use of conjunctions and an absence of or incorrect use of prepositions. Spelling errors and the duplication of the subject with the third person pronoun are also common.

Another major problem relates to the apparent reluctance on the part of students to participate in class. Very few students use the crucial learning strategy of asking relevant and appropriate questions in class. According to Grobler (1991), the confusion caused by answers to negative questions that are approached in a different way in Black languages, could be seen to be a contributing factor in students not using questioning productively. Students might, therefore, do the following:

Lecturer: Don't you have your textbook here?

Student: Yes, sir

In this exchange the student means that what the lecturer is saying is true.

Furthermore, many of the students at Technikon Northern Gauteng might have become used to the senseless repetition of language exercises. Since they were primarily expected to answer questions (and not initiate discussions, for example) in primary and secondary education, it is possible that these students don't really know how to make use of the language in a communicative or more natural context.

The inquiry into what might be the cause of language learners' reluctance to use spoken English can be related to a number of other issues:

- It is obvious that many learners are limited by an inadequate knowledge of the signs of the second language system for specific situations (specifically not having an adequate vocabulary and not knowing how words combine to form discourse [grammar and discourse rules]).

- Many learners translate from the vernacular into English, and are often too slow to keep up with the pace of a lecture.

In many cases students have a poor self-image in terms of their ability to use English. Peer pressure and the process of socialisation in a specific class group can create the fear of being ridiculed by peers/colleagues. In other words, they just don't have the confidence to speak up.

- Learners often lack adequate listening skills and may not yet be sure about strategies for initiating discourse in specific situations.

- Pressure from intolerant lecturers often causes students to act submissively in fear of being isolated, ridiculed and stigmatised by lecturers.

- Students might not be given genuine opportunities to respond to questions and initiate discussions in class.

The reluctance of many learners to speak up in the classroom leads one to accept that they also neglect or fail to use one of the most important strategies in acquiring knowledge - asking sensible and related questions. Pica (1992) notes that "comprehensible input" is negotiated by learners. Such "negotiated interaction" is achieved by learners that actively seek out opportunities for clarification, confirmation and repetition of L2 utterances they don't understand. It is crucial that English Second Language support courses at the Technikon Northern Gauteng include strategies for addressing the issues mentioned above.

2.4.2 ESL intervention at the Technikon Northern Gauteng

The contribution of Applied Linguistics theory and research to the development of suitable and appropriate ESL courses in more recent times cannot be disputed. Research on specifically second language acquisition has provided new insights on how learners learn second languages, information that cannot be ignored in SL course design and the implementation of such courses. Theory and research findings, however, need to be related to practical classroom application if it's worth for language teaching is to be evaluated. The following section

presents an account of English programmes offered at the Technikon Northern Gauteng.

The subject "English Communication" is compulsory for all diplomas at the Technikon (usually spanning a period of six months for both PD and S1). This subject is offered by the Department of Languages, but cannot be classified as consistently "content-based" or "diploma-specific". Although there is evidence of an association between ESL materials and the field of study in the English courses offered for some diplomas, others concentrate almost exclusively on general communication theory utilising general materials for language teaching and learning.

Though one would expect a fairly natural working relationship between Academic Development (AD) and ESL practitioners at tertiary institutions in South Africa, this is (sadly) not the case at the Technikon. A possible explanation for this situation is that since AD is a relatively "young" discipline, it is still difficult to accept contributions connected to AD as legitimate. The paradigm of Academic Development has, therefore, gained momentum in a separate department known as Teaching and Learning Development. This department consists of two sections: teaching development and learning development. While teaching development is mainly involved in academic staff development, learning development focuses on student development in terms of the subject "Lifeskills".

Whereas student numbers are often very high in Communication classes, it is possible to offer practical language learning strategies and language in use as part of Lifeskills, to smaller groups of students. It should, however, be noted that the possibility of teaching smaller student groups is diminishing in the context of tertiary education in South Africa. The interactive nature of lifeskills and language learning strategies offered at

the Technikon does, however, still dictate the demand for smaller student groups, a situation which will most probably be sustained as long as the PD Programme for engineering students is retained.

The development of the ESL component obviously had to comply with principles pertaining to lifeskills on the one hand, and SL acquisition within the context of tertiary academic development on the other. From the outset it was clear to the course developer that because the course would be offered as an adjunct to mainstream subjects, student motivation would be an important determining factor in deciding about the type of course to be developed. After careful consideration and research, it was decided that the course would have to take the form of either an ESP or Content-Based course. The developer therefore attempted to develop a language course to suit the needs of a particular group of learners, in this case, the needs of PD engineering students. Engineering lecturers were consulted to determine what they thought to be relevant language learning experiences for their students. Other important issues in the development of the course focused on adopting a teaching style that would encourage students to start asking questions, initiate discussions in class and reflect afterwards on what they have accomplished. It was, therefore, imperative to organise groups of students so as to create the optimum learning environment where individual students would get the opportunity to communicate their minds and test their ideas. Ample opportunity was provided for sharing of ideas and opinions in a relatively "safe" environment (ground rules were negotiated at the beginning of the semester).

Creating a positive environment for the acquisition of second language learning strategies and skills was seen to be paramount in the development of both ESL proficiency and general academic competence. As Pica (1992:4) notes, there is overall consensus among SLA

researchers that "the learner's linguistic environment is a major contributor to the acquisition process". Much emphasis was given to the development of specific language skills which are valuable for the students in their academic environment and in the "world of work". It is, therefore, obvious that the greater body of the linguistic input for the course had to come from engineering type materials and topics.

The course attempts to use, as far as is realistically possible, communication situations like problem solving sessions, simulated planning sessions and meetings as second language texts. It was thought that this would enable students to experience the type of communicative demands of the specific occupation for which they are preparing themselves, and, in addition, provide them with knowlegde about the interactional reality of their job environment. This course is, therefore, based on a combination of mainly ESP and task-based principles. Since these students do not need language for the sake of language, but language for the successful completion of specific tasks, it was thought that a task-based approach and task-based materials might encourage an awareness among students that the proficient use of language is a necessary instrument for achieving their goals.

Although the course addresses specific language issues in engineering and science, it also focuses on the holistic academic development of students. Apart from the more obvious intended outcome of the course to support students in their ability to cope with engineering subject content, the course is an attempt to entrench an awareness about people being part of different speech communities and how meaning is negotiated in such communities. Qualitative interaction between the facilitator and the learners and among the learners themselves is seen to be instrumental in the acquisition of the intended skills and strategies. Opportunities are created for reflection on how one functions in a speech

community (how others see you and what you do), and for strengthening an awareness for how and why other people think and do things differently. While students learn English for engineering, they also hone interpersonal skills and learn more about how interpersonal processes work (e.g. domination and submission through language, acceptance in a group, and how to establish yourself as a member of a specific group). The course does, therefore, not only focus on the practical side of academic language skills in use, but also strives to integrate some of the more emotional aspects of language (e.g. that one person dominating another through language is a common phenomenon).

The availability of time (only six months) was a constraining factor in the process of course design. The intention was to create an awareness among students to accept responsibility for their own language learning, so that they would continue developing their second language skills even after finishing the course. This principle is supported by what Hutchinson and Waters (1987) refer to as the skills-centred model for teaching ESP, where the course helps learners to develop skills and strategies which will continue to develop after the ESP course itself (Hutchinson & Waters, 1987:70).

A determination of learner needs is a crucial component of the Lifeskills programme. Consequently, strong emphasis is awarded to the need that language learning should be relevant to learners. This need has been singled out by SLA research over time to be an important determinant of student motivation in learning a second language. Following Ellis' (1994) discussion on motivation in SLA, it is clear that, although the course is based on engineering content, this would not necessarily ensure positive and motivated students. Decisions about classroom methodology (how learning will be facilitated) and the types of learning opportunities (e.g.

opportunities for natural communication) provided were thought to be crucial in maintaining motivation and ultimately achieving success.

Despite all the thinking and research that preceded the implementation of the course, it became apparent after implementation that the course was fundamentally flawed in terms of being offered as an adjunct to other mainstream subjects. Although the course developer and presenter paid close attention to the issue of student motivation in terms of the relevance of content and learning opportunities, this appeared not to be sufficient to ensure highly motivated students. As Kotecha *et al.* (1990) point out, although students might agree with the general purpose of having a thorough command of a second language, they will benefit very little from a course which they perceive as being an addition or an "add-on" to their normal mainstream subjects. The course presenter also found further confirmation of the fact that ESP facilitators often experience difficulty in terms of finding legitimacy in the eyes of students, because language practitioners usually have no subject specific (e.g. engineering) background (Kotecha & Rutherford, 1991).

2.5 Conclusion

It should be apparent at this stage that technikon education plays a vital role in South African education. Because of its practical worth as *lingua franca*, the author envisages that English will be retained as a language of learning at tertiary institutions. This implies that a persistant effort should be made to find creative and practical solutions that will adequately address ESL problems. ESL development is a tremendously complex issue that cannot be sufficiently addressed by expecting language specialists to provide a "quick fix" solution for language problems. Alternative strategies for implementing ESP courses at specifically technikons need to be thoroughly investigated.

CHAPTER 3

COLLABORATIVE LANGUAGE TEACHING

"Team teaching is two sides of a coin - without both, it has no value"

Shannon and Meath-Lang

3.1 Introduction

Collaborative Language Teaching (team teaching) has been successfully applied to a number of different language teaching and learning contexts. This chapter concentrates firstly on a terminological clarification in order to situate this **teaching procedure** in the broader context of language teaching and learning. It then expands on the nature and the theoretical origin of team teaching, specific implications for teacher and learner roles, and the advantages and disadvantages of the strategy. Finally an attempt is made to isolate specific issues and features that characterise successful team teaching.

3.2 Placing methods and approaches in language teaching and learning in context

Choosing between the number of language teaching methods that are available to language educators today can prove to be a daunting undertaking. Even though language educators who make an effort to keep abreast of developments in the field of language teaching and learning, might intuitively "know" what the best method would be to teach a new group of learners, such "feelings" or "hunches" could at best be used as a point of departure for developing a suitable language course. The systematicity of the process of language curriculum development proposed by Nunan (1988) provides a detailed and

organised approach towards choices about language teaching and learning. Nunan (1988:20) notes that there is a need for "...curriculum development to be systematic, and for due consideration to be given to the key elements in the curriculum development process." According to him, there has been, until recently, an imbalance in the prominence awarded to different elements in this process. In the model proposed by Nunan, this process consists of planning (including needs assessment), grouping learners, goal and objective setting, selection and grading of content, methodology (including materials and learning activities), learning arrangements (learning modes and environments), and assessment and evaluation (Nunan, 1988:14). Richards and Rodgers (1986:154) also note that methods for language teaching and learning should be located in the broader context of language curriculum development. Deciding on a specific method (or a combination of compatible components of different methods) is, therefore, only one aspect of a broader process.

The emergence of alternative proposals for language teaching and learning is, in part, a result of ongoing changes in the way people perceive the nature of language and language learning. Language teaching methods like Grammar Translation and Audio-Lingualism were severely criticised in the past on the basis of their rigidity and mostly prescriptive nature. A focus on ideas about diversity in learner needs and diverse contexts for language learning led to language educators observing a fixed methodology with some suspicion. According to Kilfoil and Van der Walt (1989:8), linguists and teachers felt that "a [specific] *method* is restrictive, and that there should be a broader *approach* to language teaching." In other words, although aims and objectives for language teaching can be specific, the methodology of realising such outcomes should not be prescribed.

Although Kilfoil and Van der Walt (1989) do distinguish between terms like "method", "approach" and "methodology", their distinction is not lucid enough for the purposes of this study, the reason being that the choice of terminology is often rather intuitive and made without the necessary circumspection in the literature. It is, therefore, necessary to provide a succinct terminological demarcation of such terms before one proceeds to a discussion of Collaborative Language Teaching. This conceptual separation is, according to the researcher, a necessary prerequisite in order to situate Collaborative Language Teaching as a specific procedure/strategy in language teaching and learning.

Richards and Rodgers (1986) provide perhaps the most workable terminological distinction between the terms mentioned above. They state that when discussing methods for language teaching, "the difference between a philosophy of language teaching at the level of theory and principles, and a set of derived procedures for teaching a language, is central" (Richards & Rodgers, 1986:15). According to them, a specific method is related to an approach or philosophy about the nature of language and language learning. A method is further realised in course design and specific procedures for implementing this design. A method is "theoretically related to an approach, is organisationally determined by a design, and is practically realised in procedure" (Richards & Rodgers, 1986:16).

A term which is, to some extent, used confusingly in the literature is the "methodology" of language teaching and learning. For Richards and Rodgers (1986:29), the development of a specific methodology refers to how the elements of approach, design and procedure combine in order to form a number of language teaching and learning methods. Nunan (1988), however, uses "methodology" to refer to how materials are worked upon in the classroom (including both materials and learning

activities), but he excludes learning arrangements or learning modes and environments from methodology. The basic difference appears to be that whereas Richards and Rodgers use "methodology" as a macro term including all the different components comprising the development of a "method" (and the corpus of methods available), this term is also used to refer to how a language course is implemented in the class. Although this dissertation will make use of both terms, an attempt will be made to employ Richards and Rodgers' term "procedure" in referring to teaching strategies and techniques used in the classroom. Where "methodology" is used, it should be clear from the context whether this term is used on a macro level (the study of language teaching and learning methods) or on a micro level (the methodology for practically implementing a specific course).

It is important to point out that although the rejection of a fixed methodology for designing and implementing SL syllabuses has provided much of the impetus for some of the creative proposals in use today, any proposal that ignores either the process or the product of language learning will be defective (Nunan, 1988:20). Central to this discussion are the tensions between a language-centred approach on the one hand, and a learning-centred approach on the other. In product syllabuses, for example, prominence is awarded to linguistic analyses of language at the expense of the learning process. In other words, there is an overemphasis on "what" is to be learnt. On the other hand, extreme versions of the process syllabus downscale content, and focus almost exclusively on the learning process. It would be fair to say at this point that for a considerable period of time, procedure (embracing the process of language learning) has not featured prominently enough in language teaching. Specific teaching procedures/techniques seem to have been left largely to the designs of the language educator. According to Richards and Rodgers (1986:27): "We expect methods to be most

obviously idiosyncratic at the level of procedure, though classroom observations often reveal that teachers do not necessarily follow the procedures a method prescribes."

Although there is obviously a case to be made for the creative interpretation of a method at the level of procedure, there is always the danger of teachers becoming placid in teaching to their own strengths and styles while largely neglecting the strengths, needs and learning styles of learners. Since procedure refers to the practical techniques and strategies used by teachers to integrate tasks and activities into lessons, this is one area in language teaching where the use of creative strategies should be focused on how productive learning can be ensured in the classroom. The adverse effects that rigidity and non-flexibility can have on the learning process in this regard, can leave both teacher and learner malcontent.

Yalden (1987) also distinguishes between the design of the syllabus and the actual strategies used in the classroom. According to Yalden, the most difficult issue in setting up a new course is deciding where to start. Should one commence by investigating procedures (with a focus on classroom techniques and strategies), or should one start by selecting a specific type of syllabus that matches a specific learning context? Richards and Rodgers (1986) suggest that a method for language teaching and learning can develop out of any of the three categories: approach, design or procedure. It can happen, for example, that while a specific type of syllabus might be an obvious choice for a specific context, the same cannot be said about choosing classroom procedures that would ensure productive contact in the classroom. The issue of how the syllabus is to be implemented in the classroom can, therefore, become the most prominent feature of a specific course, since the success or failure of the course will depend on the procedure that is

used. A good example of an approach where the importance of procedure features strongly is Communicative Language Teaching. Although procedure is not necessarily prescribed in the Communicative Approach, there are guidelines as to how classroom procedure should be managed to create and sustain authentic, communicative learning opportunities (Kilfoil & Van der Walt, 1989). More extreme versions of a focus on the learning process in language teaching include, for example, the Silent Way, Community Language Learning and Suggestopedia. In a different scenario, it can happen that even though a specific type of syllabus might have been used for some time, classroom procedures associated with the syllabus have proved to be ineffective. Teachers might, therefore, wish to revisit the issue of procedure in order to establish what should be done to enable more productive learning.

In summary, it seems as if one can use Richards and Rodgers' distinction between these terms (method, approach, design and procedure) as an indicator for the language or learner-centeredness of different methods. For example, although a method focusing on **procedure** will most probably also be closely connected to the "design" component, and be rooted in a specific "approach", **it obviously wants to stress the importance of the learning process in class.**

3.3 A theoretical rationale for Collaborative Language Teaching (team teaching)

When one employs Richards and Rodgers' theoretical distinction discussed in 3.2, it is evident that Collaborative Language Teaching refers primarily to how language teaching is organised in the classroom in terms of the application and management of procedure. According to Richards and Rodgers (1986:26), procedure relates to "the actual moment-to-moment techniques, practices, and behaviours that operate in

teaching a language according to a particular method." In the context of this this study, the term "strategy" is used interchangeably with "procedure" when referring to Collaborative Language Teaching. These two terms should, therefore, be understood to harbour the same semantic implications.

Although Collaborative Language Teaching is not a radically new procedure in teaching language, it appears not to be well known. One reason for this might be, as both Nunan (1992) and Shannon and Meath-Lang (1992) suggest, that although a number of language teachers informally reported the productive use of this strategy, very little has actually been published on the subject. More recent literature suggests, however, that there is a renewed interest in this strategy, and that there appears to be enough evidence (see Kotecha and Rutherford, 1991; Kotecha, Rutherford and Starfield, 1990; Nunan, 1992) supporting the positive effects of this strategy on SL learning, to validate an investigation into its possible implications for specific subjects and fields of study.

Collaborative language teaching and learning involves the close collaboration of a number of possible combinations of people. A distinction is usually made between collaborative teaching and collaborative learning. Within collaborative language learning, for example, collaboration can take place between learners working constructively within co-operative groups. It is, however, not collaborative learning, *per se*, that is the ambit of this dissertation, but **collaborative teaching as a strategy for the implementation of SL syllabuses.** Reece and Walker (1997) note that team teaching refers to a situation where "two or more teachers co-operate in the planning, presentation, assessment and evaluation of a course, but mainly in the presentation."

The reason for selecting a team teaching strategy as a framework for teaching appears to relate to two main issues. Firstly, some teachers might feel that in terms of classroom procedure it is worthwhile to explore alternative strategies for the more productive organisation of language courses. On a more theoretical level, teachers may wish to adapt classroom procedure according to specific ideas on how learning takes place. Teachers involving themselves in team teaching might feel that a philosophy of co-operation has the potential to lead to the integration of specific knowledge and skills, and that team teaching is a potentially more productive strategy to teach, for example, language for a specific purpose. The previous argument stands in stark contrast to the segmentalist/fragmentalist approach to which most teachers specialising in a specific field are used. Teachers might further wish to "create an environment where learning takes place in a more equitable way" (Nunan, 1992:1). The last two views find theoretical support in a learner-centred approach to teaching, since both seek to address the more immediate learning needs of learners. Because a team teaching strategy focuses mainly on classroom procedure and, therefore, the processes underlying learning, it subscribes to a learning-centred view of language learning at Richards and Rodgers' level of approach. It is, however, at the level of procedure where the influence of Collaborative Language Teaching on SL teaching and learning is most visible.

Team teaching has been applied with various degrees of success in a number of contexts. Specific types of language syllabus can be implemented through a number of different types of collaborative ventures. According to Bailey *et al.* (1992:163), the following are discernible types of collaborative or team teaching:

- the team leader type;
- the associate type;

- master teacher/beginning teacher; and
- the co-ordinated team type.

Within team leader collaboration, one teacher has a higher status than the other(s), and is obviously the "team leader" or "chief instructor". Within the associate type, leadership emerges naturally within a specific context, while the master teacher/beginning teacher arrangement is often used to get new teachers accustomed to the practical realities of teaching. The co-ordinated team type refers to joint planning of teachers teaching the same curriculum to different groups of learners.

For obvious reasons, Bailey's (1992) discussion of Cunningham's taxonomy omits a very prominent type of team teaching that emerged specifically within the context of Language for Specific Purposes (LSP) in recent years. For lack of a better term, this type will be referred to as the "shared power and decision-making" type. Within this arrangement, collaboration usually takes place between specialists who are involved in different fields of study. The different fields of study in this dissertation refer specifically to language teaching on the one hand, and subjects that form part of other disciplines (engineering, for example) on the other. In terms of the language teacher/subject specialist arrangement, certain types of language teaching proposals do appear to be more amenable to be implemented collaboratively. It is difficult to envisage subject specialists being interested in team teaching a general type language course with a language specialist, since there is no real need for collaboration. The use of a "shared power and decision-making" team teaching arrangement in the context of language teaching has as its aim the productive integration of traditionally separate disciplines. It is, therefore, an endeavour aiming at the integration of what are supposedly different expertise, knowledge, and skills, with the important guiding

tenet that learners could benefit from a combination and integration of these rather than from what an individual could offer.

At the University of the Witwatersrand, there has been a policy shift during recent years from voluntary, add-on support courses to integrated academic development. According to Pinto and Rutherford (1994:85), the issue on how to productively address language intervention at the College of Science at the University of the Witwatersrand, has long since passed the initial inquiry of **whether** language should be integrated with content. The focus has shifted to **how** this could be best accomplished. The use of team teaching as a strategy for implementing language syllabuses in this context appears to be a direct consequence of addressing the specific need of managing Language for Specific Purposes or Content-Based Instruction (CBI) more effectively.

Shannon and Meath-Lang (1992) note that once one has decided to explore team teaching as a possible teaching strategy, the content and type of course (if this has already been decided in principle) will most probably determine the type of collaborative arrangement. Although the other four types of collaborative teaching mentioned in 3.3 have been applied successfully in other contexts, it seems fair to accept that the more likely option for language teaching in specifically demarcated contexts (like engineering at technikon) would involve a choice between a LSP or Content-Based type course. This dissertation would like to suggest that the above proposals could be best implemented when language teachers team teach such courses in a "shared power and decision-making" collaborative venture with subject specialists.

From the discussion above, it appears as if both LSP and CBI can be relevant types of syllabus to be implemented through a team teaching arrangement. The ensuing discussion is, therefore, an attempt to situate

team teaching in the more specific context of language teaching and learning proposals emphasising the use of relevant content. It focuses mainly on LSP and CBI, since both share "a dissatisfaction with the traditional abstraction of language from its natural environment" (Brinton, 1993:9). Both proposals mentioned above seem to be theoretically and practically compatible with Collaborative Language Teaching.

On the level of approach, a development that has had a profound effect on language teaching and learning during the last decade or so, is the notion that language is discourse, language is a social tool and as a result should be taught, not in isolation, but, as Widdowson (1978) maintains, in meaningful and relevant contexts. Widdowson's proposal for the use of subject specific content in teaching second languages has developed into an array of LSP courses. Such courses were developed to address very specific language needs that focus mainly on the vocational preparation of learners.

Although LSP finds strong support in literature on language teaching (see The British Council, 1981; Hutchinson & Waters, 1987; Robinson, 1980; Widdowson, 1978; Yalden, 1987), this proposal is not without problems. One of the most crucial issues in LSP is the amount of transfer of learning that actually takes place between separate language classes and specific subjects/disciplines. The physical divide between the ESP classroom and the content classroom appears to find expression in the psychological barrier displayed by many ESP learners, in the sense that they find it extremely difficult to successfully integrate language issues with content matters.

Another prominent problem is that although language teachers are not trained as subject specialists, they are expected to use subject content to teach language. LSP courses often assume some familiarity on the part

of learners with regard to the content-based language materials that are used in class. This appears to be a dangerous assumption in the South African context, since, as Kotecha, Rutherford and Starfield (1990) note, "it would seem that students' scientific knowledge [for example] is not very well developed by the time they leave school. It is, therefore, extremely difficult for language practitioners to focus on the language only (as is often suggested for LSP courses), since learners inevitably ask questions on conceptual meanings such teachers cannot answer (Kotecha & Rutherford, 1991). Learners often perceive LSP teachers as "illegitimate" impostors in their field because they are not subject teachers. Pinto da Silva (1993) observes that, although it would not be fair to expect of language teachers to become experts in other disciplines, it often happens that they do acquire some specialist knowledge about the other field through exposure. She warns, however, that such knowledge should be carefully handled in the classroom, and that the language teacher should "resist the temptation to act as an expert on the subject" (Pinto da Silva, 1993:40).

Although it seems obvious to assume that subject specialists are in the best position to know about the language and conceptual demands within their subjects, and hence to deal with language issues in the content class (echoing the Language Across the Curriculum movement), they usually have had no specialist training in identifying and addressing language problems specifically (Kotecha & Rutherford, 1991). Kotecha and Rutherford (1991:101) further note that, "very few science specialists are interested in language issues and most language specialists have a background in the Arts".

One of the main problems, therefore, seems to be that for both language practitioners and subject specialists, the other's specialist field is too far removed to expect expert knowledge of both disciplines.

The sensitivity around the "fixed methodology" issue appears to have created a further problem in LSP teaching. In this instance, the prominence LSP educators award to the learning processes underlying ESP classes has been markedly affected. Pinto da Silva (1993:40) observes that within English for Specific Purposes courses specifically, "methodological considerations often have been relegated to a secondary position." She emphasises that although a focus on using authentic materials is important, it is crucial how these materials are actually worked upon in the classroom:

> I would go further and say that it is not only the nature of the materials but the methodological exploitation of them, including tasks and activities, that needs careful attention (Pinto da Silva, 1993:41).

According to Hutchinson and Waters (1987:164), one of the most important features of ESP courses, when compared to general English courses, is that "the status of English [in an ESP context] changes from being a subject in its own right to a service industry for other specialisms." This change in status has been repeatedly discussed as a further obstacle in the way of successful ESP courses. Because ESP courses are frequently perceived as inferior in status to the other subjects they supposedly serve, it is easy for students, teachers and administrators to downplay the importance of language issues.

The problems with ESP mentioned above and how they could be addressed through team teaching are discussed in detail in section 3.4.

Content-based Instruction (CBI) is defined by Brinton *et al.* (1989:vii) as "the integration of content learning with language teaching aims." According to these authors, "content-based instruction aims at

diminishing the artificial separation between language instruction and subject matter classes which exists in most educational settings." The origins of Content-Based language teaching are to be found in principles from LSP, Language Across the Curriculum (LAC) and Immersion Teaching.

Brinton *et al.* (1989) discuss three models for Content-Based teaching: theme-based language instruction, sheltered content instruction and adjunct language instruction. In theme-based instruction, the language course is designed around topics or themes taken from specific subject content. An effort is made to integrate all four language skills (listening, reading, writing and speaking) into a specific topic. Sheltered content instruction is basically a response to the principle of native speakers making certain adjustments and simplifications when speaking to second language users of a language. In this arrangement, SL learners are immersed in content classes being offered by a native user of the language who is also a subject specialist. SL learners are separated and, therefore, "sheltered" from native users of the language doing the same subject. In an adjunct arrangement, SL students register for two linked courses, a language and a content course. These courses share the same content base. SL learners will, for example, attend the language course as a separate group, but will join native users of the language for the content course. Pinto and Rutherford (1994) note that, although the adjunct model has received increasing attention as a viable model for tertiary education, such a course offered as an adjunct to other subjects is plagued by similar problems (e.g. the amount of transfer of learning, legitimacy of the language teacher using subject content for language teaching, problems with student motivation) that are troublesome to LSP courses. [Shannon and Meath-Lang (1992) mention that there is evidence of some Content-Based courses that are team-taught.]

Brinton (1993:9) notes that although LSP and CBI differ in terms of the traditional populations they serve (LSP courses originated in the context of teaching language for specific vocational purposes, while CBI grew out of purely academic needs), the most notable principle shared by these two types of language syllabus, is that both award a very strong focus to the use of relevant and authentic materials based on actual subject content for language teaching and learning.

Collaborative Language Teaching has been proposed as a possible strategy for solving some of the problems experienced in LSP and CBI. If selected, this strategy holds important implications for the overall planning and organisation of a language course. It should be obvious at this stage that materials that are used in adjunct LSP or CBI courses, will have to be altered significantly in order to be team-taught. As would become evident in the following sections, it is of utmost importance that a team-taught course should be negotiated between those involved to ensure that the materials and the strategies used are accepted and trusted by all. Additionally, a focus on procedure has important implications for specific role changes with regard to both teacher and learner. These issues are discussed in more detail in the next section.

3.4 Different roles for teachers and learners

Collaborative Language Teaching implies in many respects a departure from the more traditional roles for language teachers, subject teachers and learners. Although these role changes are not within themselves necessarily radical pedagogic changes, the whole idea of change is often met with resistance by educators. It should be noted that the successful management of change is a crucial variable in the process of accepting and implementing change. Changing from an established condition to embrace a different role with the necessary commitment can be

troublesome to those who are used to more traditional roles in education, especially if such roles have been ingrained over years.

3.4.1 The role of the teacher

Perhaps the most visible adjustment for both the language teacher and subject teacher, is that the traditional teacher role of being the sole source of information and, therefore, often the centre of attention in the classroom, changes quite drastically. Teachers suddenly have to be prepared to sacrifice some of the customary authority they have had in the classroom. The above change in role is referred to in team teaching as adhering to the principle of flexible equality. It is the sharing of authority and responsibility that is often mentioned as one of the important advantages of team teaching, since it embraces and promotes the pedagogic interaction between the teachers that make up the team, within this context acting out crucial discourse principles of specific subjects/disciplines. It is suggested by Canale (1983) that the observation of and learner involvement in such interaction could be instrumental in the development of integrated competences, with specific reference to discourse and strategic competence, learners need to contend successfully with real communicative situations in their respective disciplines.

Regarding the role of the language teacher specifically, the relatively secure and isolated position of the past now changes to a situation where the language teacher is expected to take the initiative and become a "change agent" in establishing a working relationship with content specialists. The responsibility of establishing a productive relationship appears to rest heavily on the shoulders of the language specialist, since subject specialists are "often reluctant to incorporate language into

content for reasons such as increased teaching loads, pressure to publish, and lack of collegial support" (Pinto & Rutherford, 1994:86).

Although some lecturers might have been involved in curriculum development activities where they were responsible for their specific subjects, it is evident that within team teaching, lecturers have a far greater responsibility towards joint curriculum development. It is no longer the role of the curriculum/syllabus design "expert" to "hand down" the curriculum to lecturers, but the responsibility of both lecturers (the subject and language specialist) to create a curriculum through skilled negotiation with one another and with learners. This obviously also implies that although materials to be worked on in the classroom will be derived from specific subject content, the materials still need to be adapted for a team teaching context (Kotecha & Rutherford, 1991:102).

Lecturers also seem to have a much greater obligation in terms of productive classroom organisation. It is the lecturer's responsibility to negotiate with his/her teaching partner what would be the best strategy for classroom learning. Do both members of the team feel comfortable to resolve differences in opinion openly before the class, for example? And if they choose to do so, how will this be done to afford an optimum learning opportunity to the students?

Great emphasis has more recently been awarded to the multidimensional role of the language teacher. Within Collaborative Language Teaching the continuous monitoring of learning processes is crucial. The role of the language teacher as classroom researcher, therefore, becomes much more prominent. Nunan (1992:10) notes:

> In order to understand and appreciate the complexities of the language classroom, it is important to study processes of

teaching and learning where they actually occur, that is, in the classroom itself.

It is clear that with its focus on the teaching and learning process, team teaching provides an excellent opportunity for teachers to get involved in classroom-oriented research.

3.4.2 Learner roles

Being used to a conventional language classroom might result in learners challenging the new classroom organisation in terms of legitimacy. Consequently, it appears to be very important for learners and teachers involved in team teaching to arrive at a shared understanding of their respective roles in class. Learners, therefore, also need to become accustomed to having a team of teachers in class. Sturman (1992) notes that even though this new context can be threatening and stressful at first, learners soon become used to it and appreciate the novel learning opportunities it presents.

The traditional role of learners often responding on a one-on-one basis to a single teacher now changes to having a choice as to who they could address in class. The traditional relationship within this context becomes diffuse to the extent that the traditional hierarchy is broken down, and learners become more aware that also in class they are part of a more natural "speech community". The sensibility and relevance of the communicative exchanges between teachers when they actually engage in the process of negotiating meaning are crucial in this context.

3.5 Advantages and disadvantages of Collaborative Language Teaching

It was earlier mentioned in 3.3 that team teaching is a proposal for a very specific way of arranging language teaching. In other words, when one chooses to team teach, one commits oneself to a specific procedure for teaching. Obviously, teachers need to be sure that the use of this strategy would be beneficial to their learners. The successful implementation of a team teaching strategy, therefore, depends on whether teachers see the potential advantages of such a strategy to outweigh the disadvantages for their specific context. In order to make any statement about the effectiveness of a particular teaching strategy used in a specific context, it is necessary to turn to available research findings on the subject. Sections 3.5.1 and 3.5.2 consider team teaching in terms of a number of advantages and disadvantages that have been discussed with relation to this strategy.

3.5.1 Advantages of team teaching

According to Nunan (1992:10), "the benefits of team teaching far outweigh the extra effort involved." Shannon and Meath-Lang (1992:12) note that "the context created for integrated learning and real-life application of interdisciplinary knowledge outweigh the discomforts of team teaching." The specific advantages of a team teaching strategy mentioned by Armstrong (cited in Nunan, 1992:6) are that team teaching:

- permits team members to take advantage of individual teacher strengths in planning for instruction and in working with learners;
- spurs creativity because teachers know they must teach for their colleagues as well as for their learners; and

- facilitates individualised instruction because it is possible to provide learning environments involving close personal contact between teacher and learner.

The advantages mentioned above focus mainly on two issues: the professional development of teachers themselves and the opportunities that are created for more personal attention and individualised learning. In terms of the issue on professionalism, involvement in team teaching appears to stimulate a keen observation of and reflection on not only the professional practice of teachers, but also on what constitutes successful teaching in general. This strategy, therefore, supports professional development by emphasising internal rather than external criteria for judging the value of what we do as educators. Self-awareness and strategies for self-evaluation are central to this approach.

Since one of the potential outcomes of team teaching language for a specific discipline is the meaningful and appropriate use of the target language (working on authentic engineering materials, for example, for the sake of using language to understand content and not for learning language, *per se*), students are generally more motivated and perceive such a course to be more relevant to their needs than a general language course, or a separate LSP course. Language practitioners no longer have to struggle with the problem of finding credibility in the eyes of students, since the subject specialist deals with issues related to specific concepts forming part of the content of the subject.

Team teaching further seems to have the potential to produce active, thoughtful listening. A learner that is actively involved in listening uses strategies like asking relevant questions, challenging ideas and making relevant comments in order to facilitate a better personal understanding of a subject. In a team-taught classroom the use of such strategies

becomes easier, since some of the traditional boundaries in terms of what is appropriate and acceptable in a classroom are negotiated through the more natural communicative contact between the teachers themselves, and consequently between teachers and learners.

Team teaching has immense potential for integrated curriculum development that directly addresses the issue of transfer of learning. Joint curriculum development in terms of a curriculum that is negotiated between language specialist, subject specialist and students, with all parties focusing on the most productive way to address language problems and problems with conceptual understanding, can create a visible connection between the two disciplines (the specific subject and the target language). A related issue deals with the difficulty of creating authentic communicative situations in an ESP classroom. In a team-taught class, however, learners form part of a more authentic communicative situation that has relevance for the more immediate needs of learners. Shannon and Meath-Lang (1992) note that the diverse points of view often found in team teaching invite increased dialogue and student participation in class. This is largely due to the fact that learners experience that different opinions are an integral part of academic discourse and that one has the right and responsibility to voice one's opinions. Students realise that the clarification of ideas and examining of opinions are actually necessary to arrive at constructive and productive negotiation of meaning and understanding. Team teaching creates an opportunity for the genuine integration of the knowledge and skills learners need to be successful within a specific field.

3.5.2 Disadvantages of team teaching

One of the more pronounced disadvantages of team teaching is its break with the traditional classroom usually dominated by a single teacher. It

has been recorded that the presence of two teachers teaching the same group of students can be intimidating initially. On the one hand, it can be threatening to teachers who, over years, got used to employing specific strategies and techniques in classrooms. On the other, as Reece and Walker (1997:17) note, team teaching "can be seen by the students as disjointed".

Collaborative Language Teaching seems to depend on the professionalism of the teachers involved. It furthermore appears to owe much of its success to the compatible personalities of the teachers who aim to jointly construct meaning in the classroom. In a related issue, successful team teaching appears to depend on the attitudes and commitment of subject specialists and language practitioners to work together. Since all of the issues mentioned here are to a greater or lesser extent personal in nature, they are difficult to regulate.

Although Reece and Walker (1997) mention that team teaching enables teachers to teach larger groups of students more effectively, this statement refers to a more general context. In terms of team teaching ESP and attempting to create more personal and individual learning opportunities, it is obvious that team teaching of larger groups of students might not only become increasingly difficult, but will actually defeat one of the main purposes (more personal contact) for implementing the strategy in the first place.

Kotecha and Rutherford (1991) note that in their experience, the initial planning and actual implementation of this strategy can be expensive in terms of personnel, time and effort.

3.6 What characterises successful team teaching?

Successful team teaching in a "shared power and responsibility" type arrangement seems to depend on a number of related issues. Various documented studies are available on some of the factors that will determine the success of a collaborative teaching venture. Although such factors would obviously depend to a very large extent on the specific conditions of a specific situation/context, it is possible to identify a number of general pitfalls that should be carefully negotiated when attempting to promote and implement this approach.

Team teaching relies to a large extent on whether the whole effort is well co-ordinated. This obviously involves careful planning. According to Nunan (1992:7), collaborative teaching can only hope to succeed if:

- teachers possess or are given skills appropriate to the innovation;
- teachers are given time to implement the innovation; and
- appropriate administrative and managerial arrangements and mechanisms are developed in tandem with the pedagogical innovation.

More specifically, the success of Collaborative Language Teaching ventures appears to depend to a large extent on the **quality of the working relationship** between the involved parties. One of the biggest problems with attempting to implement change, is that people often react negatively to novel ideas that might have the connotation of additional work. Such feelings of resistance are also frequently caused by simply not knowing what a specific innovation entails. The possibility of a healthy relationship, therefore, depends on levels of knowledge about the approach and, related to this, attitudes towards the strategy. It follows that lots of sensitive negotiation and information sharing are necessary

before getting to the stage where the strategy can be implemented. Teachers' willingness to investigate possible gains for their students (and themselves) if this approach is implemented successfully, will also determine how they assess its potential usefulness for their own contexts. If, for example, such a relationship is not voluntary and people are forced into team teaching for some or other reason, this could have serious consequences for the type of relationship that is to be established. As will be discussed later in this section, a relationship of trust and mutual respect is a necessary foundation for this strategy.

It would be an added advantage if the different parties have an interest in the other's field. With regard to language practitioners who are used to teaching LSP courses, the issue of "interest in the specialism" seems to be more or less unavoidable if the course is to be successfully implemented. The matter of subject specialists showing an interest in language is altogether different, since they are not compelled to get involved in their students' language problems.

According to Nunan (1992:6), a very important implication of research conducted on team teaching "is that for collaborative teaching to be effective, teachers need appropriate training and support." Apart from training in the strategies used in a team-taught classroom which include principles, materials and methods of the strategy, members of teams should preferably be involved in designing the syllabus that will be implemented collaboratively. It would obviously be an added advantage if such people have some experience in curriculum development and syllabus design. All parties involved should, therefore, have knowledge of and trust in the materials that would be jointly used in the classroom.

The literature further awards a very strong focus to the attitudes (values) of the educators involved in such a relationship. A strong academic ethic

and responsibility in terms of the academic well-being of their students seem to be crucial. [It should be interesting to observe that for the first time the need for analysing and teaching attitudes and values has been formalised in South African education - the OBE approach calls for a combination of knowledge, skills, and attitudes in order to achieve any outcome].

Compatibility of teaching philosophy and values also seems to influence the success of team teaching. An understanding and acceptance of the other team member's intrinsic beliefs about learners and how they learn, and accompanying pedagogic principles, appear to be crucial in establishing a productive team teaching relationship. This goes hand in hand with a mutual personal and professional respect (equality in the partnership), and is further reflected in the professional flexibility demanded in collaborative teaching ventures. This flexibility appears to rest on the twin pillars of self-awareness and critical pedagogy. The team teaching relationship further requires recognition and support of team members for the other's skills and expertise without the distracting influence of feelings of incompetence and denigration. It therefore calls for what Shannon and Meath-Lang (1992) refers to as "ego-strength". A clear initial demarcation of teacher roles in the class can be extremely helpful in maintaining ego-strength and establishing a productive relationship.

In terms of administrative arrangements, there should be a thorough understanding of the nature of the course. Team teaching courses should preferably be time-tabled, credit bearing and compulsory (Pinto & Rutherford, 1994). By not offering the course as an adjunct to other subjects, students would generally be more motivated to approach the course seriously.

It further seems important to decide how this strategy will be introduced to students to make it less stressful for them. Although it is not the ambit of this study, a determination of student attitudes and perceptions towards team teaching is essential.

The final test for a successful team teaching relationship is whether students truly benefited form this procedure, rather than from any other techniques or strategies. It will be necessary, therefore, to develop and employ relevant techniques for assessing the effects of team teaching throughout the course.

3.7 Conclusion

It appears as if Collaborative Language Teaching can provide a solution to some of the important problems experienced with LSP and Content-Based language courses. Because this strategy implies a departure from the familiar in a number of respects, it might be a difficult undertaking to promote it as a workable alternative to current English courses at the Technikon Northern Gauteng. The next two chapters, therefore, attempt to determine to what extent engineering and English lecturers are familiar with the strategy, and whether they would be willing to become involved in using the strategy.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

Collaborative Teaching is the type of teaching strategy that, if it is to be implemented successfully, will require strong commitment from dedicated professionals. It should be obvious that for the context of this study, such professionals (in this case the Engineering and English lecturers at the Technikon Northern Gauteng) need to be acutely aware of the gravity of the problem that faces many second language users of English in their attempt to cope with their studies at the Technikon. They should also feel obliged to finding a workable solution for ESL problems that students experience. It is further of crucial importance for such people to be aware of why specifically team teaching is suggested as a solution for solving ESL problems in engineering. The empirical section of this investigation is, therefore, an attempt to gain as much as possible information about the issues mentioned above. Such a step is prerequisite for the joint planning and implementation of a team-taught course.

This chapter contains information about the design of the study, the subjects, the instrument used, data collection procedures, and the analysis of the data.

4.2 Design

The study is based on a survey of the knowledge of the Engineering and English lecturers at the Technikon Northern Gauteng regarding Collaborative Teaching used as a general teaching strategy in class, but

also more specifically on the knowledge of these lecturers of Collaborative Language Teaching. It also focuses on lecturers' attitudes towards the possible implementation of this strategy.

4.3 Subjects

The subjects for this study include all the permanent Engineering and English lecturers at the Technikon Northern Gauteng. The sample consists of nine English and 45 Engineering lecturers at the Technikon. All engineering diplomas offered at the Technikon are represented by the Engineering respondents. This includes diplomas in Civil Engineering, Building Sciences, Electrical Engineering, Mechanical Engineering and Chemical Engineering. Although lecturers come from extremely diverse backgrounds, it was not deemed necessary to make any specific distinction in terms of issues like gender, race or age of lecturers. All lecturers are involved either in teaching engineering subjects to engineering students, or teaching English as a second language (as the subject "Communication in English") to engineering students. Because of the exploratory nature of this research, it was decided to involve the largest possible number of engineering and English lecturers in the study.

4.4 Instrumentation

The research instrument used in the study is a structured questionnaire including both open- and close-ended questions. The questionnaire consists of three sections (cf. Addendum A). The first section includes general questions addressing issues relevant to both English and Engineering lecturers. Section 2 addresses issues with specific relevance for English lecturers, while section 3 focuses on relevant issues for the Engineering lecturers.

In Section A, three questions (1-3) focus on general issues relating to English used as a language of learning. The first question attempts to establish how many respondents are native language users of English. Question 2 focuses on whether lecturers feel comfortable to use English as a language of instruction at the Technikon. The third question aims at determining lecturers' opinions about the importance of English language development for students at the Technikon. The following ten questions (4-13) address issues relating to team teaching. Questions 4-7 focus on knowledge of and possible experience in team teaching. Questions 8-13 deal with general concepts and principles underlying a team teaching strategy. These questions were structured and worded in such a way so as to ensure that even lecturers with no knowledge of team teaching would be able to respond appropriately. Since a shared teaching philosophy appears to be one of the cornerstones of successful team teaching (see Shannon & Meath-Lang, 1992:126-127), questions 14 and 15 in this section are open-ended questions focusing on how respondents would describe a "good lecturer" and "quality teaching". These two questions aim to establish the respondents' basic values and beliefs with regard to teaching. Question 16 attempts to establish lecturers' willingness to become involved in team teaching.

Section B addresses specific issues on current English language courses at the Technikon (question 17), and the most relevant framework for ESL development at technikons (question 18). This section further focuses on team teaching as a strategy for teaching ESP (question 19), and the willingness of English lecturers to become involved in team teaching specifically with Engineering lecturers (question 20).

In Section C the English language awareness of the Engineering lecturers with specific reference to Engineering students is addressed (questions 21-23). Question 24 deals with the issue of responsibility for English

language development, and questions 25 and 26 with the issue of the Engineering lecturers' willingness to collaborate with English specialists with regard to the ESL problems students experience.

4.5 Procedure

Because the researcher felt it necessary to use a research instrument that was contextually relevant for English and Engineering at the Technikon Northern Gauteng, the instrument was developed to address very specific issues within this context. The questionnaire was piloted in order to ascertain the relevance and transparency of questions, and slight alterations were made. Two engineering lecturers and one English lecturer were involved in the pilot study. Since the study population was easily accessible to the researcher (who is also a lecturer at the same Technikon), procedures for distributing the questionnaire and subsequent follow-up procedures were carried out with relative ease. The questionnaires were distributed to all lecturers through the internal office mail system at the Technikon. The researcher contacted the different Heads of Department to make sure that the questionnaires were received by the lecturers involved. The respondents were requested to return the questionnaires within a time span of 2 weeks. Since the initial response was not satisfactory, the researcher had to make use of follow-up procedures in order to ensure an acceptable response. The researcher first contacted involved lecturers telephonically, and then paid personal visits to those who had not responded. A very high percentage of the respondents eventually returned the questionnaire. From the original total of 54 questionnaires that were distributed, 40 were returned to the researcher. Overall, this amounts to a return rate of 74%. Regarding the two groups individually, 89% of the English lecturers returned the questionnaire, while 71% of the Engineering lecturers responded.

4.6 Analysis

The researcher deemed it necessary to analyse the data for the group of respondents as a whole, but also for English and Engineering lecturers as separate sub-groups. It was further thought relevant to do a separate analysis of the data pertaining to the group of respondents with previous team teaching experience.

The questionnaires were analysed by making use of descriptive statistics. This analysis mainly focused on frequency counts and percentages. Each close-ended question was, therefore, analysed in terms of how many respondents (the frequency) selected which option, and these scores were then represented as different percentages out of a total of a 100%. The mean and standard deviation were calculated for all questions that used a five point scale. Motivations for choosing a specific option were also recorded separately and then categorised. Where necessary, some of these motivations are quoted verbatim in the presentation of the results. Responses to open-ended questions were categorised and listed in order of importance according to frequency counts.

4.7 Conclusion

Because of the good return rate of questionnaires, the results can be accepted to be representative of Engineering and English at the Technikon. These results are now presented and discussed in Chapter 5.

CHAPTER 5

PRESENTATION AND INTERPRETATION OF THE RESULTS

5.1 Introduction

The results presented in section 5.2 are structured according to the specific format used in the questionnaire, and are based on an analysis of the data for the group as a whole. The results for the separate sub-groups are available in Addendum B. Results considered important are presented in bold in the respective tables.

In 5.3, the results are discussed in terms of the following focus areas (these focus areas were used as structuring principle in the design of the questionnaire):

- General section (all lecturers): Using English as a second language for teaching and learning; knowledge of and attitudes towards team teaching.
- English lecturers only: English Second Language courses at the Technikon; team teaching as a strategy for implementing ESP courses.
- Engineering lecturers only: Awareness of student problems in the proficient use of English as a second language; willingness to co-operate with English lecturers regarding students' English problems.

5.2 Results

SECTION A (Engineering and English lecturers)

Table 1. **The percentage native language users of English (question 1)**

Option	Frequency	Percentage
1. Non-native users	31	**77.50**
2. Native users	9	22.50

Table 2. **Lecturers' levels of confidence about their own proficiency to use English as language of teaching (question 2)**

Option	Frequency	Percentage
1. Not confident	0	0.00
2.	0	0.00
3.	3	7.50
4.	11	27.50
5. Very confident	26	**65.00**

Mean: 4.57 Standard deviation: 0.62

Table 3. **Lecturers' opinions about the importance of English language development for students (question 3)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	2	5.00
4.	6	15.00
5. Very important	32	**80.00**

Mean: 4.75 Standard deviation: 0.53

Table 4. Lecturers' familiarity with a team teaching strategy (question 4)

Option	Frequency	Percentage
1. Not familiar	18	**45.00**
2.	5	12.50
3.	8	20.00
4.	4	10.00
5. Very familiar	5	12.50

Mean: 2.32 Standard deviation: 1.43

Table 5. Previous involvement in team teaching (question 5)

Option	Frequency	Percentage
1. No	31	**79.49**
2. Yes	8	20.51

Table 6. Lecturers' opinions about their previous team teaching experience (question 6)

Option	Frequency	Percentage
1. Negative	0	0.00
2. Neutral	1	12.50
3. Positive	7	**87.50**

Respondents' motivations (quoted verbatim) for their choices include the following:

- "It worked very well - particularly in combination with the Communicative Approach";
- "It allowed for various points of view to be included"; and
- "All round reinforcement of goals and superior outcomes"

Table 7. **Attitudes towards sharing responsibility in class with another lecturer (question 7)**

Option	Frequency	Percentage
1. Uncomfortable	8	20.51
2.	3	7.69
3.	11	**28.21**
4.	9	23.08
5. Very comfortable	8	20.51

Mean: 3.15 Standard deviation: 1.38

Table 8. **Opinions on who should decide about the implementation of team teaching (question 8)**

Option	Frequency	Percentage
1. Lecturers themselves	31	**77.50**
2. Departmental heads	2	5.00
3. Others	7	17.50

A total of 7 respondents chose "Others" which they specified as:

- The Academic Board
- Deans
- A combination of heads of department and lecturers
- A combination of heads of department, lecturers and students
- All stakeholders

Table 9. **Opinions about what type of arrangement for implementation will provide team teaching with the best chance to succeed (question 9)**

Option	Frequency	Percentage
1. Formal departmental arrangement	11	28.94
2. Informal arrangement between lecturers	23	**60.53**
3. Others	4	10.53

Respondents who chose option 3 ("Other") mentioned the following:

- All lecturers should be involved on a rotating basis.
- Team teaching should be implemented as a formal Faculty arrangement.

Table 10. **The division of responsibility in a team teaching relationship (question 10)**

Option	Frequency	Percentage
1. Equal responsibility	15	**40.54**
2. More responsibility - Engineering	22	**59.46**
3. More responsibility - English	0	0.00

Table 11. **The importance of i) compatible personalities, ii) similar teaching styles, iii) shared teaching philosophy, iv) professional flexibility and mutual respect and v) ego-strength in establishing a productive team teaching relationship (question 11a-e)**

	i		ii		iii		iv		v	
Option	(f)	%	(f)	%	(f)	%	(f)	%	(f)	%
1. Not important	3	7.7	4	10.3	1	2.6	0	0.0	1	2.6
2.	1	2.6	4	10.3	2	5.1	1	2.6	1	2.6
3.	10	25.6	9	23.1	8	20.5	2	5.1	10	25.6
4.	7	17.9	12	**30.7**	12	30.8	8	20.5	12	30.8
5. Very important	18	**46.2**	10	25.6	16	**41.0**	28	**71.8**	15	**38.4**

i	Mean:	3.92	Standard deviation:	1.22
ii	Mean:	3.51	Standard deviation:	1.25
iii	Mean:	4.02	Standard deviation:	1.02
iv	Mean:	4.61	Standard deviation:	0.70
v	Mean:	4.00	Standard deviation:	0.98

Table 12. Lecturers' opinions about the importance of reflection on their own teaching practice for professional development (question 12)

Option	Frequency	Percentage
1. Not important	0	0.00
2.	1	2.50
3.	1	2.50
4.	8	20.00
5. Very important	30	**75.00**

Mean: 4.67 Standard deviation: 0.64

Table 13. Lecturers' opinions about how their learners will react to a team of lecturers in class (question 13)

Option	Frequency	Percentage
1. Not favourably	5	12.82
2.	5	12.82
3.	18	**46.15**
4.	6	15.39
5. Very favourably	5	12.82

Mean: 3.02 Standard deviation: 1.14

Table 14. The personality traits of a "good lecturer" (question 14)

Personality traits of a "good lecturer" pertaining to:	
His/her students	His/her occupation
• Caring, willingness to help, empathetic (f = 11) • Flexibility and adaptability (f = 8) • Sensitivity towards student needs, showing genuine interest (f = 6) • Patience (f = 4) • Openness (f = 3)	• Striving for professional excellence: diligence, being well-organised, conscientious, responsible, innovative (f = 17) • Self-assuredness, self-confidence, positive self-image (f = 7) • Highly motivated, enthusiastic, showing initiative (f = 8) • Excellent communicator (f = 3)

Table 15. The characteristics of "quality teaching" (question 15)

The characteristics of "quality teaching" pertaining to:	
Subject matter	**Teaching skills**
• Good subject knowledge (f = 5) • Relate subject matter to practical aspects and problem-solving (f = 4)	• Good communication - making sure that fundamental concepts are well-explained and understood (f = 10) • The ability to motivate students towards maximum participation (f = 6) • Sensitivity towards the ability of learners, addressing student problems, teaching for relevance (f = 5) • The ability to stimulate creative and critical thinking (f = 2) • Using remedial follow-up procedures (f = 1) • Using relevant and creative teaching aids (f = 1)

Table 16. Willingness to become involved in team teaching (question 16)

Option	Frequency	Percentage
1. No	14	36.84
2. Yes	24	**63.16**

Lecturers' motivations for their choices:

■ "Yes" (positive)

- The use of the strategy can lead to more effective class presentation, improve the quality of teaching, and broaden teaching perspectives.
- Team teaching can improve students' English proficiency.
- Lecturers can support one another with different ideas about the same problem.
- It is a way of establishing knowledge about practical aspects of career courses, and provides direction for what is required in terms of language (it makes it more relevant).
- The strategy might help to teach large groups of students.
- Team teaching can be good for building sound relationships.

- Some respondents indicated the positive nature of their previous team teaching experience as motivation for their choice.
- A number of respondents pointed out that they would need guidance before team teaching could be implemented.
- Some lecturers indicated their concern about time constraints.

■ "No" (negative)

- One lecturer indicated that she would be retiring at the end of the year.
- Some lecturers believed that engineering and English courses should be kept separate.
- Some verbatim quotes include:

- "Students will get confused."
- "I can't see it working."
- "I don't need an 'interpreter'."
- "Our programme is too tight in terms of time."
- "I'm scared of changing focus."

SECTION B (English lecturers only)

Table 17. **Opinions of English lecturers about the effectiveness of current ESL courses in order to improve students' proficiency in English (question 17)**

Option	Frequency	Percentage
1. Ineffective	2	**33.33**
2.	1	16.67
3.	2	**33.33**
4.	0	0.00
5. Very effective	1	16.67

Mean: 2.50 Standard deviation: 1.38

Table 18. Opinions about what framework for ESL development is most relevant at technikons at present (question 18)

Option	Frequency	Percentage
1. Separate, General course	0	0.00
2. Separate, ESP course	2	25.00
3. Integrated, team-taught course	5	**62.50**
4. Other	1	12.50

The respondent who chose "Other" suggested a combination of options 1,2 and 3.

Lecturers' motivations for their choices include the following issues:

- Separate, ESP course
- The English taught for each diploma should be subject specific.
- English courses should initially take the form of separate ESP courses, and later proceed to integrated, team-taught courses.

- Integrated, team-taught course
- Students should be geared towards language skills specific to their field of study.
- There was no real improvement with "cross purposes" language teaching (as separate courses).
- One respondent expressed concern about physical constraints at the Technikon, and how this could influence the implementation of the strategy.

- Other
- The English proficiency of students who enrolled at the Technikon was generally so low that it was necessary to start with a General English course first and then proceed to English for more specific purposes.

Table 19. **Opinions about whether team teaching can be an effective way to teach ESP courses (question 19)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	8	**100.00**

Lecturers' motivations for their choices include that:

- Co-operation between English and Engineering lecturers could be mutually beneficial. Usually nobody knew what the others were doing;
- Team teaching could result in immediate clarity of content;
- The English taught would be more relevant;
- Although lecturers would share ideas, different methodologies in class could be beneficial to learners;
- The language lecturer would have the direct assistance of an engineering expert to explain technical terms; and
- Team teaching would require lots of preparation in terms of consultation and planning.

Table 20. **Willingness of English lecturers to become involved in team teaching with Engineering lecturers (question 20)**

Option	Frequency	Percentage
1. No	1	12.50
2. Yes	7	**87.50**

SECTION C (Engineering lecturers only)

Table 21a. **Opinions of Engineering lecturers about whether their students experience ESL problems (question 21a)**

Option	Frequency	Percentage
1. No	1	3.13
2. Yes	31	**96.87**

Table 21b. **Impressions of lecturers about what percentage of Engineering students experience ESL problems (question 21b)**

Option	Frequency	Percentage
00.00%	1	3.13
15.00%	1	3.13
30.00%	1	3.13
50.00%	1	3.13
60.00%	5	15.61
65.00%	1	3.13
70.00%	7	21.87
75.00%	1	3.13
80.00%	6	18.75
90.00%	1	3.13
99.00%	2	6.25
100.00%	5	15.61

Mean: **71.65%** Standard deviation: 23.80

Table 22a. **Opinions of Engineering lecturers about their own ability to identify ESL problems experienced by their students (question 22a)**

Option	Frequency	Percent
1. No	2	6.25
2. Yes	30	**93.75**

Table 22b. **English language problems prioritised: i) Incorrect use of grammar; ii) Incorrect spelling; iii) Incorrect sentence and paragraph construction; iv) Inadequate vocabulary; v) Incorrect pronunciation (question 22b)**

	i		ii		iii		iv		v	
Order of importance	(f)	%	(f)	%	(f)	%	(f)	%	(f)	%
1. Most important	3	16.7	1	5.3	7	36.8	9	**47.3**	0	0.0
2.	5	27.8	2	10.5	8	**42.2**	2	10.5	0	0.0
3.	7	**38.8**	5	26.3	2	10.5	3	15.8	2	11.1
4.	2	11.1	9	**47.3**	2	10.5	4	21.1	0	0.0
5.	1	5.6	1	5.3	0	0.0	1	5.3	15	**83.3**
6.	0	0.0	1	5.3	0	0.0	0	0.0	0	0.0
7. Least important	0	0.0	0	0.0	0	0.0	0	0.0	1	5.6

Some lecturers preferred to add additional problem areas. These responses include:

- Poor comprehension (importance = 1);
- A general inability to use English (importance = 2);
- Poor interpretation of questions (importance = 3);
- Insufficient report writing skills (importance = 6); and
- A lack of confidence in speaking (importance = 6).

Table 23. **Opinions about whether English proficiency influences students' ability to cope with technikon studies (question 23)**

Option	Frequency	Percentage
1. No	4	12.90
2. Yes	27	**87.10**

Lecturers' motivations for their choices:

■ "Yes"

- Students appear to have difficulty to interpret questions.

- Students don't understand study material, they revert to memorisation and therefore never reach the levels of analysis and synthesis.
- The language of learning is English (all text books and notes are in English).
- Interpreting and solving problems are nearly impossible.
- Students don't understand basic principles (vital information) and engineering terminology.
- Students cannot share their knowledge if they cannot write and speak properly (they fail to express themselves correctly).

■ "No"

- Because Engineering is more about calculations, a subject like Mathematics in Engineering is not influenced so much.
- One respondent believed that there was no real "crisis" in terms of the English proficiency of students.

Table 24. The division of responsibility for the ESL development of Engineering students (question 24)

Option	Frequency	Percentage
1. English specialists	16	**51.61**
2. Engineering specialists	1	3.23
3. All parties teaching the students	14	**45.16**

Table 25. Engineering lecturers' acceptance of the assistance of an English specialist to identify and address ESL problems in class (question 25)

Option	Frequency	Percentage
1. No	4	12.50
2. Yes	28	**87.50**

Table 26. **The willingness of Engineering lecturers to become involved in team teaching with English lecturers (question 26)**

Option	Frequency	Percentage
1. No	11	36.67
2. Yes	19	**63.33**

5.3 Discussion of the results

5.3.1 General section

Questions in this section of the questionnaire focused on general issues thought to be applicable for both Engineering and English lecturers.

5.3.1.1 Using English as a second language for teaching and learning (questions 1-3)

Although 77.5% of the respondents indicated that English was not their native language, 92.5% felt confident about their own ability to use English as the language of teaching at the Technikon. Since there appears to be sufficient evidence of the influence of affective states (e.g. anxiety, lacking confidence) on the actual use of a second language (see Ellis, 1994:479-483), this finding is crucial in the context of attempting to implement a team teaching strategy. One can accept that lecturers who feel confident about their own ability to use English should not experience major anxiety regarding this issue when they are confronted with the idea of having another lecturer in class.

Although the majority of respondents appeared to be confident in using English as a language for teaching, evidence of language errors made by respondents themselves in their completion of the questionnaire is cause for concern. The researcher accepts that respondents are, most

probably, totally unaware of the fact that they make English language mistakes. Even though the overt correction of English language mistakes should not be the primary objective of a team taught class, it is inevitable that some mistakes will be addressed. A situation where lecturers are found to make similar mistakes to those of students, has the potential of derailing a productive team teaching relationship. Lecturers might, therefore, feel ridiculed and might lose legitimacy in the eyes of learners as a result of their proficiency in English.

The researcher believes that the reality of becoming involved in team teaching will bring new fears to many lecturers who are second language users of English. The mere presence of someone that is supposed to be an "expert" in English, or the pressure on English specialists that are expected to know everything about the English language, can be a threatening experience to both Engineering and English lecturers.

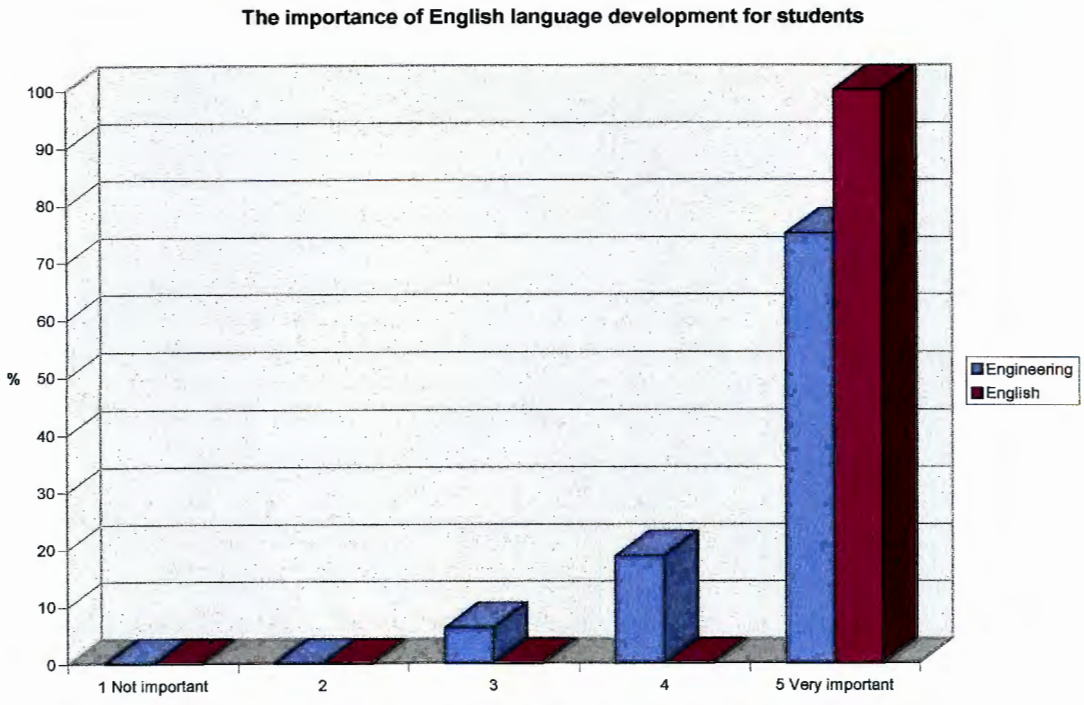
In response to how important they deemed English language development for students, 95% of the respondents' answers ranged between the options "important" to "very important". Broken down into separate groups, 100% of the English lecturers were of the opinion that English language development was "very important", while 93.8% of the Engineering lecturers' responses ranged between "important" to "very important". It appears then as if both groups of lecturers are sufficiently aware of the necessity of English language development for students at the Technikon (see Figure 1).

5.3.1.2 Knowledge of and attitudes towards team teaching (questions 4-16)

One of the key findings of this research is that respondents are generally not very familiar with team teaching. The majority of the respondents

(57,5%) indicated no or very little familiarity with the strategy. Twenty percent (20%) indicated that they knew something about the strategy, but not enough to choose one of the stronger options. Only 22.5% indicated that they were familiar with team teaching (see Figure 2). This finding corroborates what is suggested in the literature in terms of team teaching being an unfamiliar teaching strategy for many educators (see Nunan, 1992:5-6).

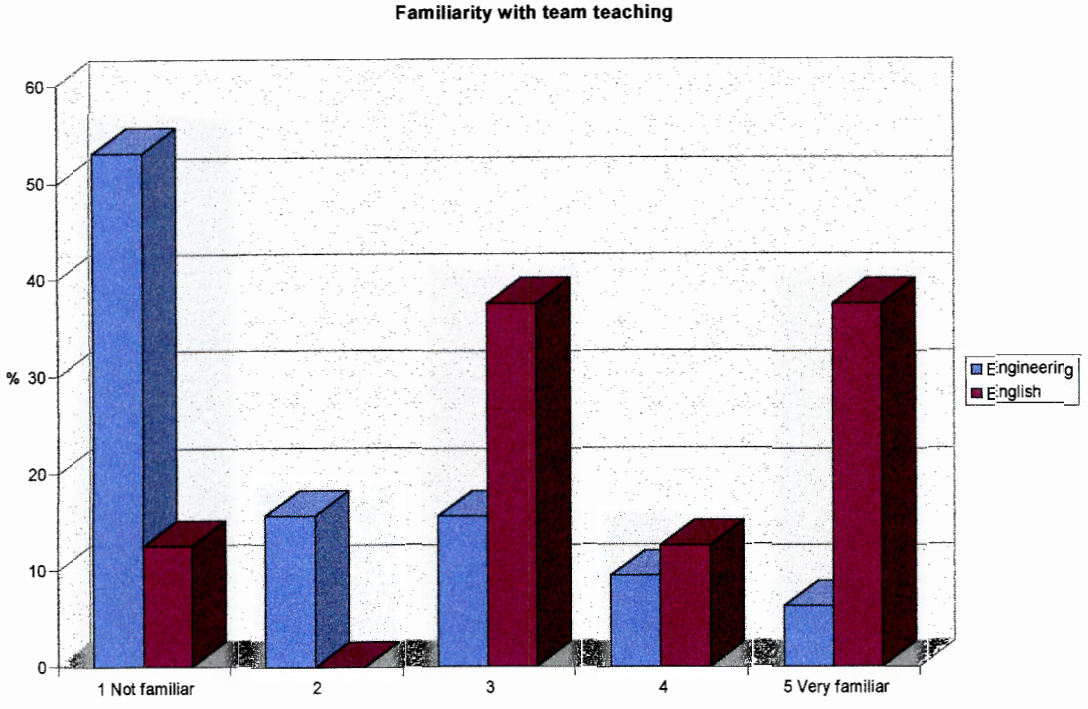
Figure 1.



The results of the question on respondents' previous involvement in team teaching are not very positive in terms of the extent of involvement. The data are, however, promising in terms of the overall positive feeling of those respondents that indicated previous team teaching experience. Although a high percentage (79.5%) of respondents indicated no previous involvement with this strategy, 8 lecturers (20.5%) indicated that they had previous team teaching experience. It is significant that, in response to question 6, only one respondent indicated a neutral (and not

negative) feeling towards this experience. The remaining 7 respondents indicated that for them, it was a positive experience. One lecturer recorded extensive experience in the use of the strategy. What is further significant, is that in the separate analysis for the group with experience in team teaching, all 8 respondents indicated that they would be prepared

Figure 2.



to become involved in team teaching again. There does, therefore, exist a core of lecturers who can be called upon to assist in the presentation of information and training sessions in the use of the strategy.

In terms of how respondents felt about sharing the teaching responsibility in class, 28.2% indicated a neutral feeling. This finding is significant because these respondents did not opt for the negative side of the scale. There were, however, those respondents (28.2%) that indicated that they felt uncomfortable with the idea. For 43.6% it was a comfortable thought to have another lecturer in class. Because the strategy is

generally unfamiliar, the distribution of scores is not surprising. The novel nature of the idea of having another lecturer in class probably caused respondents to treat the question with some degree of caution. The researcher is of the opinion that a gradual and extensive introduction to the whole concept of team teaching might be helpful in clarifying some of the uncertainties about the strategy. This could lead to alleviating some of the initial fears about the strategy, and the respondents who felt neutral about this issue might come to appreciate the potential benefits of having another lecturer in class.

It is significant that 77.5% of the respondents did not want to be forced into team teaching. They indicated that lecturers themselves should decide whether they would like to become involved in team teaching, a finding that is strongly supported in the literature (Bailey, Dale & Squire, 1992:173). Although 60.5% of respondents believed that team teaching should be an informal arrangement between lecturers, it is inevitable that such a project will have to be co-ordinated within specific departments. Projects perceived to fall outside the parameters of "normal departmental duties" often do not succeed at the Technikon. Since the implementation of team teaching will have important implications in terms of organisational and administrative issues, the researcher is of the opinion that team teaching will have the best chance to succeed if it is implemented as a formal part of the academic structure of specific departments. This is not to say, however, that all lecturers need to become involved in using this strategy. There appears to be some support among the respondents (29%) for the necessity of departmental control and co-ordination of team teaching. Of further significance is the fact that some respondents indicated that it would be important for all affected parties, including students, to be involved in any decisions about an attempt to implement the strategy.

In terms of respondents' opinions about how responsibility should be divided in a team-taught class, 59.5% believed that the Engineering specialist should take more responsibility. However, 40.5% were of the opinion that the responsibility should be shared equally among the teaching partners. The response that favoured more responsibility for Engineering lecturers could probably be explained in terms of the discipline-specific nature of Engineering. Although the purpose of such a team-taught class is ultimately to teach English for Engineering, a large number of the Engineering respondents might have felt that because engineering content would be used to teach English, they should take more responsibility in class. Even more important might be the uncertainty about how and in which class (the actual practical arrangement) team teaching will take place. A number of the Engineering respondents expressed their concern in terms of the availability of time in an already tight teaching schedule. Engineering respondents could, therefore, have been influenced in the sense that they were not really sure whether this strategy would be implemented during their normal lecturing time for Engineering subjects. From the 40.5% of the respondents who opted for equal responsibility, only 7 were Engineering lecturers. The other 8 from a total of 15 accounted for all the English lecturers. It is clear that, although the English lecturers might have been aware of the potential importance of equally sharing responsibility, Engineering lecturers' uncertainties in terms of practical arrangements and, by implication, the availability of time will have to be adequately addressed.

The following 5 issues are considered to contribute with varying degrees of importance to the establishment of productive team teaching relationships (see Shannon & Meath-Lang, 1992:124-133). For the purposes of easy interpretation, options 1 and 2 were grouped together

as "not important", and options 4 and 5 as "important" for all 5 issues concerned:

- Compatible personalities

In terms of compatible personalities, 64.1% of the respondents indicated that this was an important issue. Even though this appears to be an important matter for the respondents, the literature points out that this is a very difficult issue to control for team teaching relationships. Although it would be ideal to team teach with a person one likes in terms of personality, this is not always possible (Sturman, 1992:147). It seems as if the safest option would be to attempt to ensure that one does not team teach with a person one actively dislikes.

- Similar teaching styles

With regard to similarity in teaching styles, 56.3% of the respondents felt that it was important, 23.1 felt neutral and 20.6% that it was not important. Though a relatively large proportion of the respondents regarded this issue as important, there appears to be more uncertainty about this issue than, for example, issues like "shared teaching philosophy" or "mutual respect". The literature indicates that different teaching styles can actually be beneficial in terms of the professional development of both partners in the team teaching relationship (Shannon & Meath-Lang,1992:127).

- Shared teaching philosophy

Regarding shared teaching philosophy, 71.8% of respondents were of the opinion that it was an important issue. A high percentage of respondents indicated, therefore, that if they became involved in team

teaching, they would prefer a teaching partner who was compatible with their values and beliefs about teaching.

- Professional flexibility and mutual respect

A very high percentage (92.3%) of respondents indicated that this was an important issue. This finding is significant since the literature suggests that without mutual respect and trust between the teaching partners, a team teaching relationship rarely succeeds (Sturman, 1992:153).

- Ego-strength (strong, positive self image)

With regard to ego-strength, 69.2% of the respondents indicated this to be important. Without ego-strength, it is very difficult to reach equality in the teaching relationship (Shannon & Meath-Lang, 1992:133). It further appears that ego-strength is very important in maintaining a balance between one's own confidence and showing recognition for the skills of one's partner.

In terms of the 5 issues discussed above, it appears as if those issues that are developed over a significant period of time and that form part of more personal or "private" attributes, are not as important as issues like "teaching philosophy" and "professional flexibility and mutual respect". Those issues that involve ways of thinking about teaching and learning and the manner in which teaching partners treat one another, appear to be critical issues for the majority of the respondents in the establishment of a successful team teaching relationship.

Reflection on their own teaching practice was an important issue for most respondents (95%) with relation to their own professional

development. Since a successful team teaching relationship seems to rest very heavily on the notion of constant reflection (see Shannon & Meath-Lang, 1992:128-130), this finding is significant in the context of successful team teaching.

A high percentage of respondents (46.2%) appeared not to be sure how their learners would react to a team of lecturers in class. Since the majority of respondents had no experience in team teaching, this finding is not surprising. While 25.6% felt that their learners would not react favourably, 28.2% indicated that they believed their students would react favourably. Although there is evidence of learners reacting negatively to team teaching because it is so different to the familiar, learners also appear to grow accustomed to the strategy (see Budd & Wright, 1992:225) Because of its volatile nature, this is an issue that warrants further investigation.

Responses to question 14 provided valuable information, not only on how respondents see the personality of a "good lecturer", but also on some intrinsic values they believe underlie such a personality. The responses can be broadly divided into two categories. The first category contains features that are linked to how lecturers behave towards students. According to the respondents, a "good lecturer" would be a caring person who is sensitive to student needs and is willing to assist students. Additionally, such a person is patient, flexible and adaptable. The second category focuses on the characteristics of a "good lecturer" pertaining to his/her occupation. Such a person is described as someone who strives for professional excellence (including features such as diligence, responsibility, and being well-organised). Significantly, this person is also confident in his/her own abilities, enthusiastic about teaching and takes initiative in getting things done. Such a person should furthermore be an excellent communicator.

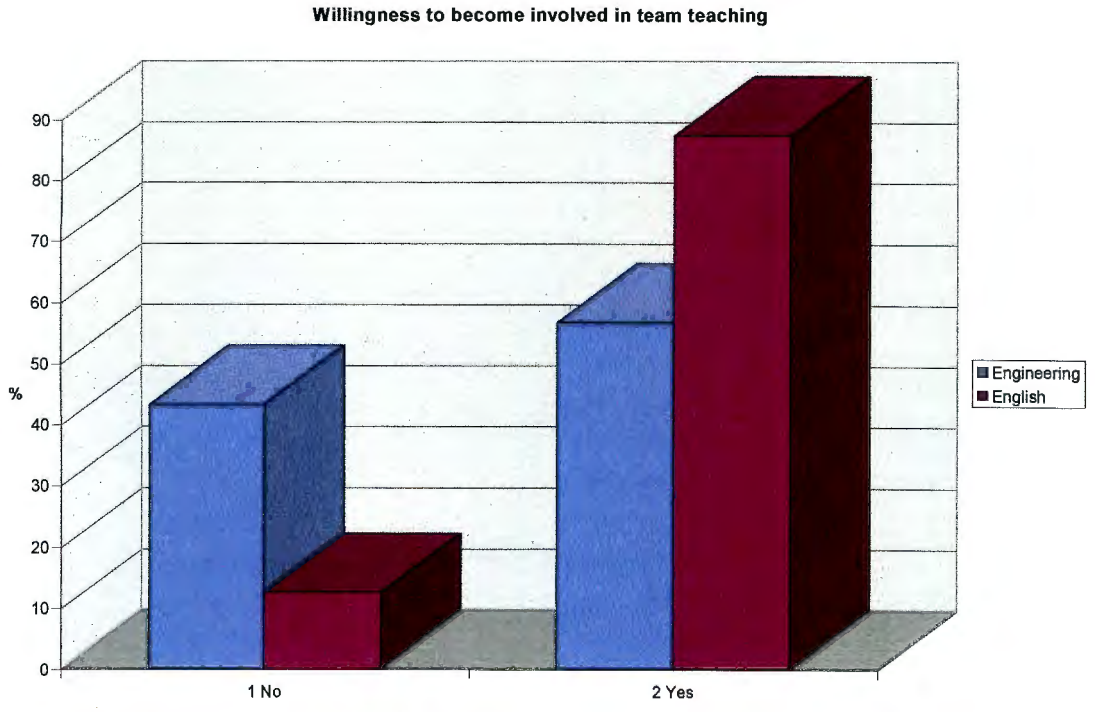
The concept of "quality teaching" can be related very closely to a specific teaching philosophy. Responses were again divided into two broad categories: the characteristics of "quality teaching" pertaining to subject matter on the one hand, and to teaching skills on the other. With regard to subject matter, it appears as if lecturers feel that good subject knowledge on the part of the lecturer is essential for quality teaching. An important additional requirement is that theoretical work should be related to practical application and problem solving, an issue which is central in technikon education. "Quality teaching" in terms of teaching skills takes place when a lecturer communicates concepts well and makes sure that concepts are understood. Lecturers are obliged to use relevant strategies for ascertaining whether concepts have been understood by students. Lecturers should, therefore, be sensitive to student problems and address them adequately. This concept is further related to an ability to stimulate maximum student participation and creative and critical thinking.

The responses to questions 14 and 15 are significant in two respects. Firstly, if one accepts that respondents would like to think of themselves as "good lecturers" who are involved in "quality teaching", the importance that respondents award to being sensitive to student needs and problems, and addressing such problems adequately, is very meaningful. Since Engineering respondents showed awareness of the ESL problems students experience (see Table 21a), it should not be too difficult to promote team teaching as a possible strategy for addressing these problems. Secondly, one can assume that respondents would prefer to become involved with a teaching partner who is a "good lecturer", and who is known for "quality teaching". A relationship with a person who is not a "good lecturer" would, after all, be a complete waste of time for most people. The characteristics mentioned by respondents will be instrumental in providing a profile for describing a "good lecturer"

involved in "quality teaching". Also in terms of formal quality assurance, such values will provide the cornerstone on which successful team teaching relationships could be built.

In response to whether they would be prepared to become involved in team teaching, 63.2% of the respondents indicated that they were generally prepared to team teach. A minority of respondents (36.8%) indicated that they were not prepared to become involved in team teaching. Broken down into different sub-groups, the English lecturers (87.5%) seemed more prepared to team teach than the 56.7% Engineering lecturers (see Figure 3). It is, however, significant that when

Figure 3.



the question was changed slightly to refer specifically to team teaching with an English lecturer (see Table 26), a higher percentage of Engineering lecturers (63.3%) indicated their willingness to become involved in such a relationship. One can, therefore, safely accept that

this finding indicates positive potential towards an attempt to implement the strategy.

5.3.2 English lecturers only

This section of the questionnaire contained specific questions that were thought to be applicable for English lecturers only.

5.3.2.1 English Second Language courses at the Technikon (questions 17,18)

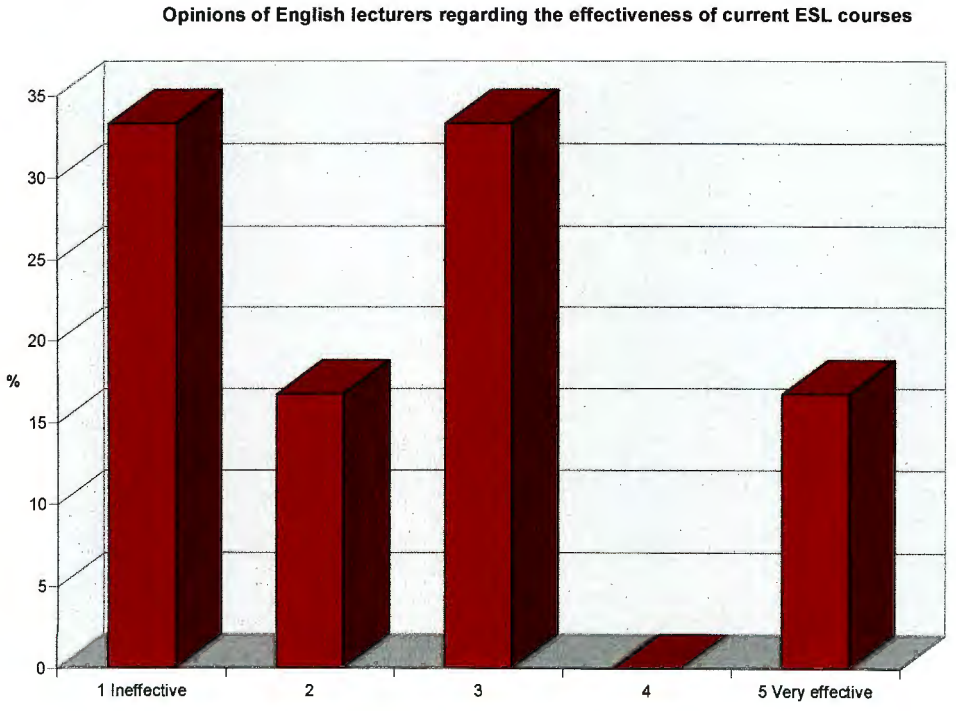
Of the six English respondents who completed question 17, three felt that ESL courses at the Technikon were not effective. Two respondents preferred the neutral option, while only one respondent was of the opinion that courses were very effective (see Figure 4).

In additional comments, English lecturers stressed the fact that English courses focused much more on general communication than on specific ESL skills and strategies. The variation in the opinions of English lecturers, but more specifically the fact that current courses are not seen to be highly effective, is very meaningful within a context of attempted change. This can be interpreted as a general attitude of uncertainty about the effectiveness of current courses. This position might well lead to a concerted effort on the part of English lecturers to find an acceptable alternative to current English courses, an idea that is supported by the positive response from English lecturers to become involved in team teaching.

In terms of what framework they thought was most relevant for ESL development at technikons at present, 62.5% of the English lecturers were of the opinion that an integrated, team-taught language course was

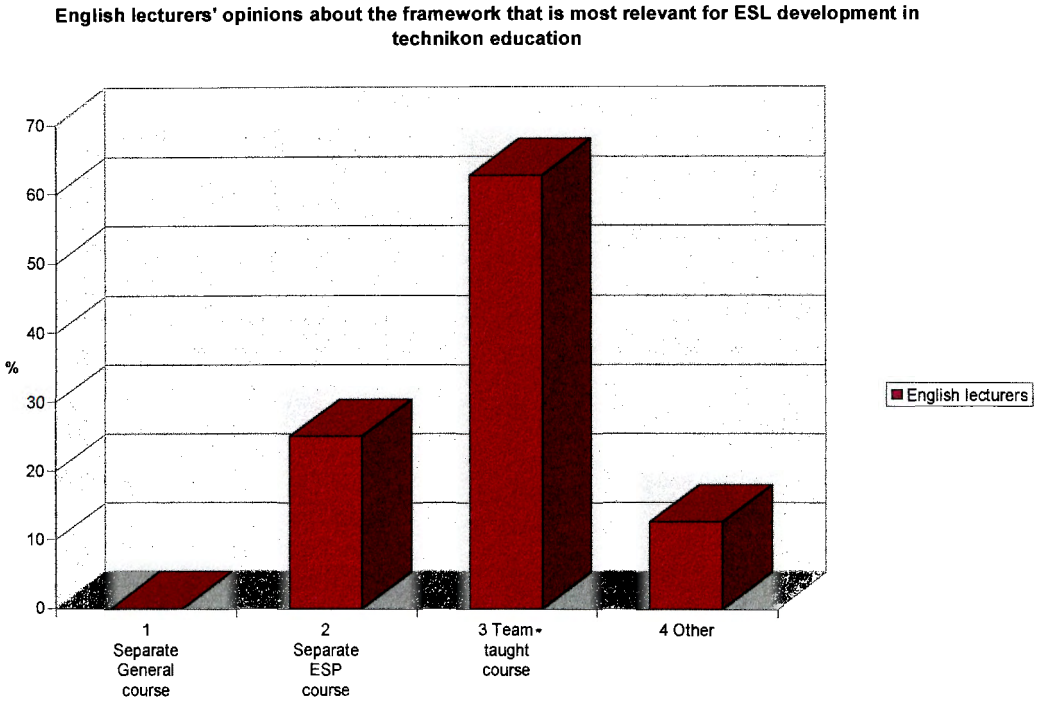
most relevant. None of the respondents opted for the "separate, general course" option, while 25% chose the option pertaining to a separate, ESP course. One respondent chose "other", which was specified as a combination of options 1,2 and 3 (see Figure 5).

Figure 4.



In general, it appears as if English lecturers are aware of the importance of English courses that address the English needs of specific diplomas. However, some of the respondents feel very strongly that because many students have a very weak grasp of English, they should first enrol for a General English course before they engage in an English course for more specific purposes.

Figure 5.



5.3.2.2 Team teaching as a strategy for implementing ESP courses (questions 19,20)

All the English lecturers (100%) indicated that team teaching had the potential to be an effective strategy in teaching ESP. Respondents mentioned possible benefits for team teaching in ESP that include issues like "immediate clarity of content", "direct assistance from a subject specialist in explaining technical terms", and that the different approaches of lecturers in a team could assist learners to understand better. The concern was also raised that this strategy would require very careful planning and lots of consultation with those involved.

Only one respondent in this group was not prepared to become involved in team teaching with an Engineering lecturer, the reason given being retirement at the end of the year. The other seven (87.5%) all indicated their willingness to become involved in such a relationship.

5.3.3 Engineering lecturers only

In this section of the questionnaire, questions with specific relevance for Engineering lecturers were included.

5.3.3.1 Awareness of student problems in the proficient use of English as a second language (questions 21-24)

A very high percentage of Engineering lecturers (96.9%) appeared to be aware that their students experienced problems in English. This finding is important in the sense of providing a legitimate purpose from an engineering perspective for implementing a strategy like team teaching. Because team teaching in this context will be a joint effort between Engineering and English lecturers, it is obvious that it is crucial for both parties to show an awareness of the fact that there is a problem with English proficiency.

It was further the impression of Engineering lecturers that an average of 71.7% of Engineering students experienced ESL problems. Impressionistically, one can accept that for these lecturers, this problem is not restricted to a few students, but that they perceive the majority of their students to be experiencing problems with English.

The majority of Engineering respondents (93.8%) felt that they had enough knowledge of English to identify specific problems students experienced with English. For these respondents, the most important problem displayed by their students was their inadequate vocabulary. This included the understanding and correct use of subject specific terminology, as was mentioned by respondents in response to question 23. The second priority focused on incorrect sentence and paragraph construction. The high priority awarded to these two problems indicates

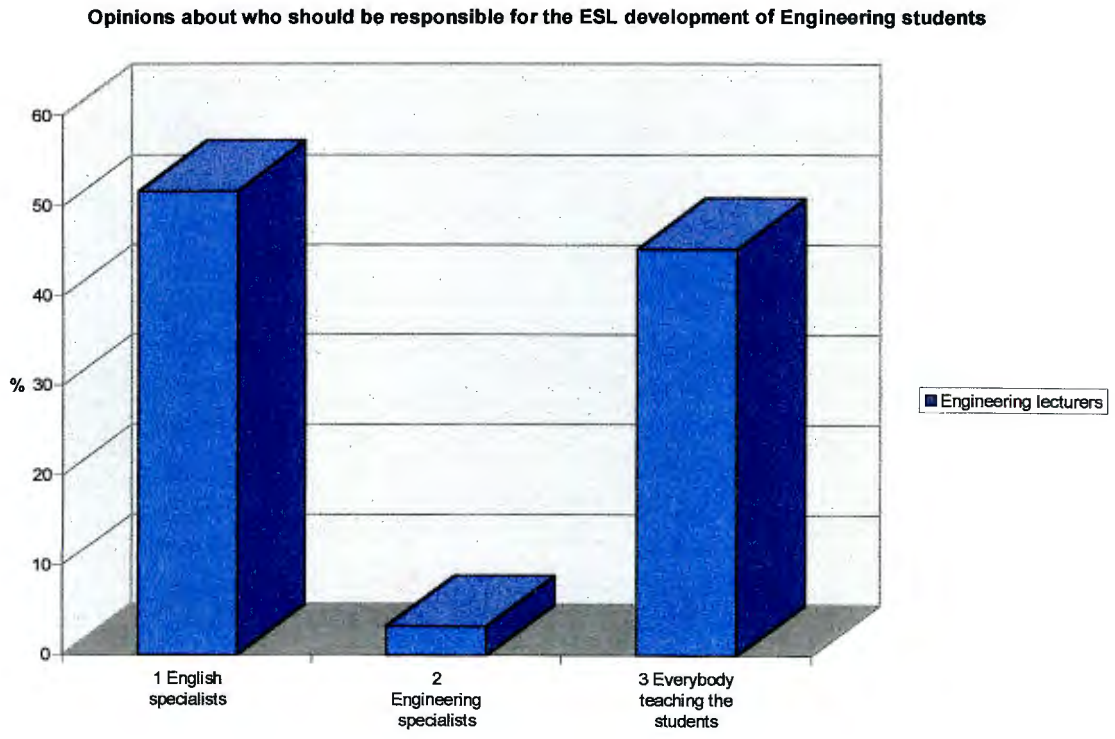
that Engineering lecturers tend to place more emphasis on meaning and how it is constructed in English, than on grammatical correctness or correct spelling of English. It therefore appears as if, for Engineering lecturers, the major problem is students' inability to use English in order to "make meaning" (including the meaningful formulation of utterances) in engineering. This finding is extremely important in the sense of co-ordinating the focus for a team-taught course. Because question 22b only attempted to ascertain the opinions of Engineering respondents with regard to English problems, it will be necessary to administer a standardised English proficiency test to students in order to gain more reliable data about specific English problems.

A large majority of the respondents (87.1%) further felt that problems in English affected their learners' ability to deal with technikon studies. Since English is, after all, the language of learning at the Technikon, one cannot really expect of learners to perform well if they are not proficient in English. Engineering lecturers indicated that, because students had problems in the understanding of basic concepts, the interpretation of questions and expressing themselves correctly, such problems would inevitably influence how well they performed at technikon.

While 51.6% of the Engineering lecturers believed that ESL development was the responsibility of English language specialists, 45.2% indicated that, along the lines of English Across the Curriculum (EAC), all parties involved in teaching the students should be responsible for ESL development (see Figure 6). It is mentioned in the literature that language development is usually seen as the responsibility of a language expert (Kotecha & Rutherford, 1991:101). To a large extent, this also appears to be the case at the Technikon. A recent development that holds promise in terms of providing support for EAC, is the implementation of Outcomes Based Education in South Africa. The

requirement that Critical Outcomes should be specified in the development of Unit Standards demands of educators to include necessary elements of, for example, communication into the subjects they teach. A positive finding in this study is that a large percentage of Engineering lecturers seem to realise their own responsibility in terms of the ESL development of their students.

Figure 6.



5.3.3.2 Willingness to co-operate with English lecturers with regard to students' English problems (question 25)

Although a high percentage of Engineering respondents indicated that they had the ability to identify English problems themselves, 87.5% of these respondents seemed to be prepared to co-operate with English language specialists in order to identify specific language problems. This

is a positive finding which can be used as a sound foundation onto which subsequent team teaching relationships can be built.

5.4 Conclusion

The results of the empirical section of this study are generally positive towards the implementation of team teaching. Although the majority of respondents are not familiar with team teaching, a large proportion of these lecturers seem willing to participate in this strategy because of the potential benefits to students in terms of the development of English proficiency. A number of concerns have been raised by the respondents with regard to the practical implementation of the strategy. These concerns need to be carefully examined when recommendations are made towards the implementation of English team teaching for Engineering.

CHAPTER 6

GUIDELINES FOR THE IMPLEMENTATION OF TEAM TEACHING IN ENGLISH AND ENGINEERING

6.1 Introduction

In this chapter, guidelines are proposed for the implementation of team teaching. The successful implementation of a team-taught course will depend on a number of important issues that are discussed in 6.2. Although the English and Engineering lecturers at the Technikon Northern Gauteng are positive towards implementing the strategy, some concerns were raised that will have to be considered carefully before an attempt is made to implement the strategy. The discussion in 6.3 can serve as an example of implementation for other tertiary institutions.

6.2 General guidelines for the implementation of team teaching

Different types of Collaborative Language Teaching relationships are available for different contexts (see 3.3). These types of relationships address the issue of collaboration with different degrees of intensity. The following guidelines are proposed for the implementation of a team teaching strategy in a "shared power and decision making" type collaborative venture:

- Since this strategy appears to be relatively unfamiliar, knowledge of the strategy and attitudes towards it should be investigated. Similar to the empirical part of this study, one needs to determine how receptive educators are from different disciplines to work together. Furthermore, it will be very important to determine the perceptions of

learners on the strategy. Such a survey of learner attitudes can provide valuable information on how to approach learners in team-taught sessions.

- Thoughtful planning, consideration and organisation is necessary before team teaching is implemented. The use of the strategy appears to hold important financial implications for the educational institution where it is implemented. The issue on the availability of funding should be thoroughly explored. It will further be important to gain the support and approval of management for the use of the strategy in order to avoid unnecessary impediments during the process of implementation. The concept of team teaching should, therefore, be promoted to and approved at the managerial level of an institution.

- Educators who wish to become involved in team teaching should preferably be afforded enough time to make a genuine commitment to such a project.

- A comprehensive introduction to the strategy is of crucial importance. In this way, fears and uncertainties about the strategy can be addressed and clarified. The following issues should be addressed in training sessions on team teaching:

  ⇒ Different possibilities for how curriculums can be rearranged to accommodate the strategy should be discussed.

  ⇒ Clarification should be provided on how lecturer and learner roles will change in a team-taught class. Such roles need to be clearly defined for team teaching sessions, and should also be shared with learners who are to be involved in such sessions.

⇒ A rationale for the joint development of course materials must be provided. The course to be implemented should be negotiated between team members in order to ensure a commitment to the relevance of the teaching and learning materials. In addition, a general needs assessment of learner needs and a diagnostic test for determining ESL problem areas will ensure that appropriate content is included and relevant issues emphasised.

⇒ Educators need to be made aware of the time and effort involved in successful team teaching.

⇒ Since successful team teaching appears to depend to a greater or lesser extent on issues like personality and values about teaching and learning, guidance needs to be provided on how to select a teaching partner. Team members are to be encouraged to focus on the goals of the course rather than personality factors.

⇒ Meetings between the teaching partners should be held at regular intervals to discuss progress.

⇒ Team teaching needs to carefully evaluated.

⇒ Although the actual classroom arrangements will be negotiated between the teaching partners, it would be sensible to provide some examples of successful team teaching sessions (if possible, in a video-taped form). Teaching partners need to decide how they will achieve a productive balance between a focus on language on the one hand, and a focus on content on the other (also see 3.4.1).

6.3 Recommendations for the implementation of team teaching English for Engineering at the Technikon Northern Gauteng

Since the Engineering and English lecturers at the Technikon Northern Gauteng have been sensitised about team teaching through their completion of the questionnaire (cf. Chapter 5), it would be desirable not

to wait too long before implementing the strategy. It would, however, be ill-advised to attempt an immediate full-scale implementation of team teaching English for Engineering at the Technikon. Apart from the fact that the results of the empirical study have shown a general unfamiliarity with team teaching among lecturers, and that lecturers will need ample time to fully assimilate the strategy, it appears as if the use of the strategy will have important financial implications for the Technikon (see 3.5.2). A more judicious alternative would be to implement the strategy on a smaller scale that focuses, for example, on only one engineering department. Such a pilot project will have to be conducted over a considerable period of time (preferably a full academic year), and should be thoroughly researched and documented in order to provide firm grounds for a more full-scale implementation of the strategy. The results of the project should, therefore, be compared to the results of the Engineering students from other departments in order to measure the performance of the students involved in the pilot project. This research should be conducted by those lecturers who are involved in the project, since they are best situated to do such research.

Thorough planning and excellent co-ordination will be essential if the project is to succeed. The idea of a pilot project will have to be negotiated with both Engineering and English lecturers. Since the researcher is a member of the Engineering Faculty Board, an overview of the most significant results of the study could be presented at this forum. The intended project should be discussed in detail and one specific department identified that would be prepared to get involved in the project. Preferably, one lecturer for each subject offered to Engineering Potential Development (PD) students should be involved in the project. The results of the study also need to be shared with the Department Languages, and their approval gained for the suitability of the idea of initiating a pilot project.

Once the Engineering department that will be involved in the project has been identified, a special meeting will have to be set up between this department and the Department Languages in order to discuss a realistic time-frame and other important organisational issues. After consensus has been reached on general organisational issues, a more formalised approach should be adopted for the approval of the project. Although lecturers should have the freedom to decide on their own involvement in team teaching, the use of the strategy will have to be approved by the customary academic structures at the Technikon such as the Academic Support Committee, the Instructional Committee and the Academic Board.

The successful execution of the pilot project will depend to some extent on financial assistance received from the Technikon and alternative funding agencies. The availability of adequate funds will determine to what degree lecturers involved in the project could be relieved from their normal teaching duties. Preferably, these lecturers will need to have a reduced teaching load in order to make a real commitment towards the project possible. Funding agencies should be approached in an attempt to secure adequate financing for the project. At present, the Technikon is involved in a number of smaller projects within the Tertiary Education Linkages Project (TELP), funded by the United States Agency for International Development (USAID). One of these projects, the Access Programme to Engineering and Technology (APET) is currently investigating the feasibility of a one year generic bridging course for Engineering. Apart from the fact that people involved in an effort to implement team teaching English for Engineering will have to liaise closely with the APET programme, such interaction could be an opportunity to secure funds for the pilot project. If additional funding cannot be accessed, current departmental structures will have to be slightly altered to accommodate the project. It will not be too difficult,

for example, to use the established periods for Communication in English for this purpose. Since team teaching can take place during their time-tabled periods, the implications for English staff are not so great as for Engineering staff in terms of additional workload.

It is imperative that information sessions and practical workshops be presented for those who will be involved in the pilot project. However, because of the potential importance of team teaching for an Outcomes-Based approach to teaching and learning, information on team teaching should not be restricted to lecturers in the pilot project. Seminars on team teaching that are informative in nature can also be included in the annual programme of the Department Teaching and Learning Development, so that other faculties are exposed to the strategy. Lecturers can further be supplied with information on the concept of Language Across the Curriculum and how the critical outcomes proposed in OBE (with specific reference to the outcome including communication and language) can affect current and future course development and curriculum design.

Training sessions on team teaching should be presented by people with sufficient knowledge about the strategy, but preferably also with practical experience in the use of team teaching. A number of lecturers who have indicated experience in the use of team teaching can be approached to assist in the presentation of these sessions. The sessions presented to lecturers in the pilot group should be planned and facilitated in such a way so as to ensure the establishment of specific teams for the project. The following will be important issues that should be addressed at training sessions for Engineering and English lecturers:

- A clear rationale should be provided for team teaching English in engineering.

- The practical arrangement and organisation of team taught classes need to be adequately addressed (e.g. different alternatives for what time will be available for team teaching; how many sessions per week should be used for team teaching, etc.).

- Since the selection of a compatible teaching partner can be a precarious issue, guidelines on what has been found to be important features of successful team teaching relationships can facilitate mindful decisions on the part of lecturers. The results of lecturers' perceptions on what constitutes a "good lecturer" and "quality teaching" can also be discussed in terms of relevance for selecting a teaching partner.

- It will be crucial to assist lecturers in the use of relevant strategies on how to document classroom events. Since such information can provide valuable evidence on the effectiveness of team teaching, it should be ensured that scientifically sound methods are used for documenting events in the classroom.

Engineering lecturers have strongly indicated their willingness to co-operate with English lecturers in the identification of English problems. It might, therefore, be useful to present a workshop (or, if needed, a series of workshops) on this topic specifically. During this workshop there should be ample opportunity for Engineering and English lecturers to share opinions on this issue. The problems identified by the Engineering lecturers in this study can be used as basis for the workshop. Such a session will have the dual purpose of further sensitising lecturers to types of ESL problems and different perceptions about these problems, but also making lecturers more aware of their own language difficulties. Although lecturers might harbour relatively established ideas about students' English problems, a more reliable method should also be employed to

ascertain English proficiency. A standardised English proficiency test (e.g. TOEFL or the Proficiency Test: English Second Language Advanced Level) should, therefore, be used to determine the English proficiency of the pilot group.

A combination of learner needs determined through needs assessment, ESL problem areas that are identified by means of the proficiency test, and the ideas of Engineering and English lecturers about ESL difficulties experienced by students, should be considered in the process of joint course design. The course should include task-based elements focusing on meaning (or how English is used in engineering to negotiate meaning). Class exercises should, therefore, derive from task-based problems and situations that are focused on engineering. The inclusion of language elements that focus on form can also be valuable if such elements are integrated into specific tasks to be performed by students (see Butler, 1996:94-116 for further discussion).

The following issues will need to be addressed by teaching partners in the process of building a productive team teaching relationship:

- A survey of attitudes of students in the pilot groups towards team teaching will be extremely valuable in order for team members to know what to expect from learners and to plan accordingly.

- The respective roles of team teachers in class should be negotiated and clearly defined. These roles should also be shared with students, and their specific role negotiated with them.

- Specific responsibilities and a realistic time-frame for the development of teaching and learning materials should be determined. Teaching and learning material will have to be developed jointly in order to

ensure its acceptability to both lecturers. Although there are already some specific purposes materials available for engineering (in the ESL component of Lifeskills, for example), it is advisable that materials are developed (or adapted) to address the context of a team-taught session.

- Meetings will have to be held on a regular basis between teaching partners in order to discuss problems and progress within the team and in class. Preferably, the different teams involved in the pilot project should also meet in order to discuss the general progress of the project.

It is advisable that a number of support workshops be offered during the course of the year where lecturers can share opinions on problems that they have experienced, as well as expound on the relative effectiveness of classroom methodologies and teaching and learning materials they have used.

6.4 Conclusion

The guidelines proposed in this chapter can facilitate the process of demystifying a team teaching strategy for educators, and can assist towards the successful implementation of team teaching English for Engineering.

If the pilot project at the Technikon Northern Gauteng proves successful in terms of showing significant gains in the English proficiency of the students involved, the strategy can be implemented on a larger scale. If agreed, team teaching can then also be extended to the teaching of English in other faculties at the Technikon.

CHAPTER 7

CONCLUSION

7.1 Introduction

In conclusion to this study, a summary is provided of the most important findings. Recommendations are also made with regard to further research.

7.2 Most important findings based on the literature review and the empirical study

This research indicates that technikon education is primarily involved in higher education that prepares learners for a specific vocation. It is, therefore, education that is accountable to the educational needs of such vocations. In an educational context, Engineering Studies at a technikon requires of students to have a sound command of a number of cognitive and language skills in order to be successful in their studies. There are, however, also other language skills which, although they do not feature strongly in an academic context, are extremely important in the occupational environment. It appears as if the language skills Engineering Studies require are best offered when learners can see the relevance of such skills to their field of study. Although it appears as if ESP and CBI might be judicious options for ESL syllabus design in this context, a number of problems are experienced to achieve success with such courses at tertiary level.

Collaborative Language Teaching (team teaching) is proposed as a strategy for solving some of the problems with ESP and CBI and, therefore, for bridging the divide between distinctly different disciplines

like engineering and English. The literature indicates that the implementation of team teaching can be a difficult issue, since it involves a departure from traditional modes of teaching in class. It furthermore shows that the success of team teaching largely depends on the quality of the working relationship between the members of the team. Therefore, apart from depending on issues like personality, teaching styles and ego-strength, successful team teaching relies on the professionalism of the people involved, as well as their values and philosophy about teaching and learning.

It is evident that, before a possible implementation of the strategy, one needs to determine whether educators are familiar with the use of the strategy, as well as whether they would be prepared to become involved in it. In this study, the attitudes and knowledge of Engineering and English lecturers at the Technikon Northern Gauteng were, therefore, determined as a case study. The most significant findings of the empirical research is firstly that educators are generally not familiar with the use of the strategy. Training should be provided before an attempt is made at implementation. Secondly, there is a core of lecturers with previous team teaching experience at the Technikon Northern Gauteng that can be involved to present training sessions in the use of the strategy. Although there appears to be a fair amount of uncertainty and fear about what the implementation of the strategy actually entails, a large proportion of lecturers seem willing to become involved in team teaching. It further seems as if both Engineering and English lecturers are very aware of the fact that students do experience problems in English, and there seems to be a willingness to address this problem comprehensively.

It is the opinion of the researcher that this study provides a sufficient foundation for the attempted implementation of team teaching English for

Engineering at the Technikon Northern Gauteng. It is suggested, however, that this should be done at a small scale initially. If such a pilot project proves successful, a full-scale implementation of the strategy can be attempted.

7.2 Recommendations for further research

A number of suggestions for further research have already been made in detail in Chapter 6. These include a survey of learner attitudes towards team teaching, as well as a determination of the specific language needs of learners. A standardised English proficiency test will also have to be administered in order to have a reliable measure of the English proficiency of learners at the Technikon. In addition, a survey of the English language requirements of commerce and industry might prove to provide valuable information for the actual design of the course.

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ADDENDUM A: Questionnaire

TO:
FROM: H.G. Butler (Teaching and Learning Development)
DATE: 17/09/1998

Dear colleague

This questionnaire forms part of a dissertation towards the completion of a Master's degree in Applied Language Studies.

In the new educational dispensation in South Africa, the importance of investigating alternative teaching methods and classroom strategies towards a more productive implementation of courses, cannot be overemphasised. The study focuses on the implications of Collaborative Language Teaching (team teaching) for Engineering and English at the Technikon Northern Gauteng. This strategy for the implementation of Specific Purposes language courses has been successfully applied in a number of different subject contexts, with specific reference to the context of Engineering. Collaborative teaching refers to a team of teachers (often consisting of a subject specialist and a language specialist) who are both present in class at the same time, teaching the same group of students.

The primary aim of the questionnaire is to determine the current knowledge of Engineering and English lecturers with regard to team teaching, as well as attitudes towards the strategy. All information will be treated as confidential by the researcher, and no individual will be identified. After an analysis of the data, a short report will be distributed to all respondents. Since your participation is central to the successful completion of this research project, I trust that you will agree to be a participant in the study.

The questionnaire consists of three sections. SECTION A should be completed by both Engineering and English lecturers. SECTION B should be completed by English lecturers only, and SECTION C by Engineering lecturers. Your early response will be highly appreciated. Will you please complete the attached questionnaire and return it to me (office 2029, ext. 9516) through internal office mail prior to 28 September 1998.

Yours sincerely

_____
H.G. Butler
(researcher)

NO: _____ (1-2)

QUESTIONNAIRE - COLLABORATIVE LANGUAGE TEACHING

Instructions:

- ***SECTION A*** *should be completed by both Engineering and English lecturers.*
- ***SECTION B*** *should be completed by English lecturers only and* ***SECTION C*** *by Engineering lecturers.*
- *Please indicate your choice between alternatives by marking one option with a cross (X).*
- *Where requested, please provide a short motivation for your answer.*

For office use only:

SECTION A - ENGLISH AND ENGINEERING LECTURERS

1. Is English your native language (mother tongue)? (3)

no	1	yes	2

2. How confident are you about your proficiency to use English as a language of teaching (instruction) at the Technikon? (4)

1 not confident	2	3	4	5 very confident

3. Please indicate the importance that you assign to English language development for students at the technikon: (5)

1 not important	2	3	4	5 very important

4. Are you familiar with collaborative teaching (team teaching) as a strategy for the joint implementation of courses? (6)

1 not familiar	2	3	4	5 very familiar

Office use:

5. Have you previously been involved in team teaching?

no	1	yes	2	(7)

6. If you answered "yes" to question 5, would you describe the experience as negative, positive, or do you feel neutral about it?

negative	1	neutral	2	positive	3	(8)

Please motivate your answer:

_____

_____

_____

7. How do you feel about the idea of sharing the teaching responsibility in class with another teacher from another discipline?

1 uncomfortable	2	3	4	5 very comfortable	(9)

8. Should a team teaching strategy for the teaching of specific subjects be introduced, who do you think should decide about this?

1	Lecturers themselves	(10)
2	Departmental heads	
3	Others - please specify:	

_____

9. Do you believe that team teaching stands a better chance to succeed if implemented:

1	As a formal departmental arrangement	(11)
2	As an informal arrangement between individual lecturers who wish to use the strategy	
3	Other – please specify:	

_____

Office use:

10. Please think about a scenario where, for example, an English language specialist and an Engineering specialist share the teaching responsibility in teaching the same class (both are present at the same time, the language specialist focusing on language and the Engineering specialist on content). How, in your opinion should this responsibility be divided?

1	Equal responsibility	(12)
2	Engineering specialist take more responsibility	
3	Language specialist take more responsibility	

11. Should you become involved in team teaching, how significant would you rate the following issues in establishing a productive team teaching relationship with another lecturer:

a) compatible personalities

1 not important	2	3	4	5 very important	(13)

b) similar teaching styles

1 not important	2	3	4	5 very important	(14)

c) shared teaching philosophy

1 not important	2	3	4	5 very important	(15)

d) professional flexibility and mutual respect

1 not important	2	3	4	5 very important	(16)

e) ego-strength (strong, positive self image)

1 not important	2	3	4	5 very important	(17)

Office use:

12. In the context of their own professional development, how important is it for lecturers to reflect on the success of their own teaching practice in class?

1 not important	2	3	4	5 very important

(18)

13. How do you think your learners will react to a team of lecturers in class?

1 not favourably	2	3	4	5 very favourably

(19)

14. How will you describe the personality of a "good" lecturer? Please identify specific features of such a personality:

_____

_____

_____

15. Please write down any specific characteristics of what your understanding is of "quality teaching":

_____

_____

_____

16. Will you be prepared to get involved in a team teaching relationship?

no	1	yes	2

(20)

Please motivate your answer:

_____

_____

_____

Office use:

SECTION B - ENGLISH LECTURERS

17. How do you rate the effectiveness of current English Second Language courses at the Technikon in terms of improving the English proficiency of students?

1 ineffective	2	3	4	5 very effective

(21)

18. Which framework for ESL development at technikons do you think is most relevant at present?

1	Separate, General English course
2	Separate, English for Specific Purposes (ESP)/content based course
3	Integrated (English and Engineering, for example), team taught language course
4	Other – please specify:

(22)

Please motivate your choice:

_____

_____

_____

19. Do you think that team teaching can be an effective way to teach English for Specific Purposes?

no	1	yes	2

(23)

Please give reasons for your answer:

_____

_____

_____

20. Will you be prepared to become involved in a team teaching relationship with an Engineering lecturer?

no	1	yes	2

(24)

Office Use:

SECTION C - ENGINEERING LECTURERS

21a. Do Engineering students, according to you, experience second language (English) problems? (25)

no	1	yes	2

21b. If so, what percentage of Engineering students, in your opinion, experience English problems? (26-28)

_____ %

22a. Can you identify specific English language problems experienced by your students?

no	1	yes	2

22b. If so, please prioritise the options below in order of importance (use 1 for the problem that occurs most frequently, and 2;3;4;5;... for those that occur less frequently). Use the column provided on the left of the options: (29)

	Incorrect use of grammar (30)
	Incorrect spelling (31)
	Incorrect sentence and paragraph construction (writing) (32)
	Inadequate knowledge of vocabulary (33)
	Incorrect pronunciation (34)
	Other – please specify: (35)
	(36)
	(37)

23. Do you believe that problems in the proficient use of English affect Engineering students' ability to deal with the level of academic study at the Technikon?

no	1	yes	2

(38)

Please motivate:

_____

_____

_____

Office Use:

24. Who, in your opinion, should be responsible for the English language development of your students?

1	English language specialists	(39)
2	Engineering specialists	
3	All parties involved in teaching the students	

25. If you wish to identify and address English language problems in your class, will it be helpful to work with an English language practitioner in doing this?

no	1	yes	2	(40)

26. Will you be prepared to become involved in a team teaching relationship with an English lecturer?

no	1	yes	2	(41)

ADDENDUM B: Results for the separate sub-groups

The numbering of the tables presented in this addendum corresponds with the numbers of tables presented in Chapter 5. Where certain tables are omitted, such data are either not available or not relevant for the specific sub-group.

- **Results of the English sub-group:**

SECTION A (Engineering and English lecturers)

Table 1. **The percentage native language users of English (question 1)**

Option	Frequency	Percentage
1. Non-native users	4	**50.00**
2. Native users	4	**50.00**

Table 2. **Lecturers' levels of confidence about their own proficiency to use English as language of teaching (question 2)**

Option	Frequency	Percentage
1. Not confident	0	0.00
2.	0	0.00
3.	0	0.00
4.	0	0.00
5. Very confident	8	**100.00**

Table 3. **Lecturers' opinions about the importance of English language development for students (question 3)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	0	0.00
4.	0	0.00
5. Very important	8	**100.00**

Table 4. **Lecturers' familiarity with a team teaching strategy (question 4)**

Option	Frequency	Percentage
1. Not familiar	1	12.50
2.	0	0.00
3.	3	**37.5**
4.	1	12.5
5. Very familiar	3	**37.5**

Table 5. **Previous involvement in team teaching (question 5)**

Option	Frequency	Percentage
1. No	4	**50.00**
2. Yes	4	**50.00**

Table 6. **Lecturers' opinions about their previous team teaching experience (question 6)**

Option	Frequency	Percentage
1. Negative	0	0.00
2. Neutral	0	0.00
3. Positive	4	**100.00**

Table 7. **Attitudes towards sharing responsibility in class with another lecturer (question 7)**

Option	Frequency	Percentage
1. Uncomfortable	0	0.00
2.	0	0.00
3.	1	12.50
4.	3	37.50
5. Very comfortable	4	**50.00**

Table 8. **Opinions on who should decide about the implementation of team teaching (question 8)**

Option	Frequency	Percentage
1. Lecturers themselves	8	**100.00**
2. Departmental heads	0	0.00
3. Others	0	0.00

Table 9. **Opinions about what type of arrangement for implementation will provide team teaching with the best chance to succeed (question 9)**

Option	Frequency	Percentage
1. Formal departmental arrangement	4	**50.00**
2. Informal arrangement between lecturers	4	**50.00**
3. Others	0	0.00

Table 10. **The division of responsibility in a team teaching relationship (question 10)**

Option	Frequency	Percentage
1. Equal responsibility	8	**100.00**
2. More responsibility - Engineering	0	0.00
3. More responsibility - English	0	0.00

Table 11. **The importance of i) compatible personalities, ii) similar teaching styles, iii) shared teaching philosophy, iv) professional flexibility and mutual respect and v) ego-strength in establishing a productive team teaching relationship (question 11a-e)**

	i		ii		iii		iv		v	
Option	(f)	%	(f)	%	(f)	%	(f)	%	(f)	%
1. Not important	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2.	1	12.5	1	12.5	0	0.0	0	0.0	0	0.0
3.	1	12.5	2	25.0	1	12.5	0	0.0	1	12.5
4.	1	12.5	3	**37.5**	3	37.5	1	12.5	3	37.5
5. Very important	5	**62.5**	2	25.0	4	**50.0**	7	**87.5**	4	**50.0**

Table 12. **Lecturers' opinions about the importance of reflection on their own teaching practice for professional development (question 12)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	0	0.00
4.	0	0.00
5. Very important	8	**100.00**

Table 13. **Lecturers' opinions about how their learners will react to a team of lecturers in class (question 13)**

Option	Frequency	Percentage
1. Not favourably	1	12.50
2.	0	0.00
3.	3	**37.50**
4.	2	25.00
5. Very favourably	2	25.00

Table 16. **Willingness to become involved in team teaching (question 16)**

Option	Frequency	Percentage
1. No	1	12.50
2. Yes	7	**87.50**

- **Results of the Engineering sub-group**

SECTION A (Engineering and English lecturers)

Table 1. **The percentage native language users of English (question 1)**

Option	Frequency	Percentage
1. Non-native users	27	**84.37**
2. Native users	5	15.63

Table 2. **Lecturers' levels of confidence about their own proficiency to use English as language of teaching (question 2)**

Option	Frequency	Percentage
1. Not confident	0	0.00
2.	0	0.00
3.	3	9.37
4.	11	34.38
5. Very confident	18	**56.25**

Table 3. **Lecturers' opinions about the importance of English language development for students (question 3)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	2	6.25
4.	6	18.75
5. Very important	24	**75.0**

Table 4. **Lecturers' familiarity with a team teaching strategy (question 4)**

Option	Frequency	Percentage
1. Not familiar	17	**53.13**
2.	5	15.62
3.	5	15.62
4.	3	9.38
5. Very familiar	2	6.25

Table 5. **Previous involvement in team teaching (question 5)**

Option	Frequency	Percentage
1. No	27	**87.10**
2. Yes	4	12.90

Table 6. **Lecturers' opinions about their previous team teaching experience (question 6)**

Option	Frequency	Percentage
1. Negative	0	0.00
2. Neutral	1	25.00
3. Positive	3	**75.00**

Table 7. **Attitudes towards sharing responsibility in class with another lecturer (question 7)**

Option	Frequency	Percentage
1. Uncomfortable	8	25.80
2.	3	9.70
3.	10	**32.25**
4.	6	19.35
5. Very comfortable	4	12.90

Table 8. **Opinions on who should decide about the implementation of team teaching (question 8)**

Option	Frequency	Percentage
1. Lecturers themselves	23	**71.88**
2. Departmental heads	2	6.25
3. Others	7	21.87

Table 9. **Opinions about what type of arrangement for implementation will provide team teaching with the best chance to succeed (question 9)**

Option	Frequency	Percentage
1. Formal departmental arrangement	7	23.33
2. Informal arrangement between lecturers	19	**63.34**
3. Others	4	13.33

Table 10. **The division of responsibility in a team teaching relationship (question 10)**

Option	Frequency	Percentage
1. Equal responsibility	7	24.14
2. More responsibility - Engineering	22	**75.86**
3. More responsibility - English	0	0.00

Table 11. **The importance of i) compatible personalities, ii) similar teaching styles, iii) shared teaching philosophy, iv) professional flexibility and mutual respect and v) ego-strength in establishing a productive team teaching relationship (question 11a-e)**

	i		ii		iii		iv		v	
Option	(f)	%	(f)	%	(f)	%	(f)	%	(f)	%
1. Not important	3	9.7	4	12.9	1	3.2	0	0.0	1	3.2
2.	0	0.0	3	9.7	2	6.5	1	3.2	1	3.2
3.	9	29.0	7	22.6	7	22.6	2	6.5	9	29.0
4.	6	19.4	9	**29.0**	9	29.0	7	22.6	9	29.0
5. Very important	13	**41.9**	8	25.8	12	**38.7**	21	**67.7**	11	**35.5**

Table 12. **Lecturers' opinions about the importance of reflection on their own teaching practice for professional development (question 12)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	1	3.12
3.	1	3.12
4.	8	25.00
5. Very important	22	***68.76***

Table 13. **Lecturers' opinions about how their learners will react to a team of lecturers in class (question 13)**

Option	Frequency	Percentage
1. Not favourably	4	12.90
2.	5	16.13
3.	15	**48.39**
4.	4	12.90
5. Very favourably	3	9.68

Table 16. **Willingness to become involved in team teaching (question 16)**

Option	Frequency	Percentage
1. No	13	43.33
2. Yes	17	**56.67**

- **Results of the sub-group with previous team teaching experience:**

SECTION A (Engineering and English lecturers)

Table 1. **The percentage native language users of English (question 1)**

Option	Frequency	Percentage
1. Non-native users	6	**75.00**
2. Native users	2	25.00

Table 2. **Lecturers' levels of confidence about their own proficiency to use English as language of teaching (question 2)**

Option	Frequency	Percentage
1. Not confident	0	0.00
2.	0	0.00
3.	0	0.00
4.	3	37.50
5. Very confident	5	**62.50**

Table 3. **Lecturers' opinions about the importance of English language development for students (question 3)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	0	0.00
4.	1	12.50
5. Very important	7	**87.50**

Table 4. **Lecturers' familiarity with a team teaching strategy (question 4)**

Option	Frequency	Percentage
1. Not familiar	1	12.50
2.	0	0.00
3.	1	12.50
4.	2	25.00
5. Very familiar	4	**50.00**

Table 5. **Previous involvement in team teaching (question 5)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	8	**100.00**

Table 6. **Lecturers' opinions about their previous team teaching experience (question 6)**

Option	Frequency	Percentage
1. Negative	0	0.00
2. Neutral	0	0.00
3. Positive	7	**100.00**

Table 7. **Attitudes towards sharing responsibility in class with another lecturer (question 7)**

Option	Frequency	Percentage
1. Uncomfortable	1	12.50
2.	0	0.00
3.	2	25.00
4.	1	12.50
5. Very comfortable	4	**50.00**

Table 8. **Opinions on who should decide about the implementation of team teaching (question 8)**

Option	Frequency	Percentage
1. Lecturers themselves	8	**100.00**
2. Departmental heads	0	0.00
3. Others	0	0.00

Table 9. **Opinions about what type of arrangement for implementation will provide team teaching with the best chance to succeed (question 9)**

Option	Frequency	Percentage
1. Formal departmental arrangement	2	25.00
2. Informal arrangement between lecturers	6	**75.00**
3. Others	0	0.00

Table 10. **The division of responsibility in a team teaching relationship (question 10)**

Option	Frequency	Percentage
1. Equal responsibility	5	**62.50**
2. More responsibility - Engineering	3	37.50
3. More responsibility - English	0	0.00

Table 11. **The importance of i) compatible personalities, ii) similar teaching styles, iii) shared teaching philosophy, iv) professional flexibility and mutual respect and v) ego-strength in establishing a productive team teaching relationship (question 11a-e)**

	i		ii		iii		iv		v	
Option	(f)	%	(f)	%	(f)	%	(f)	%	(f)	%
1. Not important	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2.	1	12.5	0	0.0	0	0.0	0	0.0	0	0.0
3.	1	12.5	4	**50.0**	2	25.0	1	12.5	3	**37.5**
4.	1	12.5	1	12.5	2	25.0	1	12.5	2	25.0
5. Very important	5	**62.5**	3	37.5	4	**50.0**	6	**75.0**	3	**37.5**

Table 12. **Lecturers' opinions about the importance of reflection on their own teaching practice for professional development (question 12)**

Option	Frequency	Percentage
1. Not important	0	0.00
2.	0	0.00
3.	1	12.50
4.	0	0.00
5. Very important	7	**87.50**

Table 13. **Lecturers' opinions about how their learners will react to a team of lecturers in class (question 13)**

Option	Frequency	Percentage
1. Not favourably	0	0.00
2.	0	0.00
3.	3	**37.50**
4.	3	**37.50**
5. Very favourably	2	25.00

Table 16. **Willingness to become involved in team teaching (question 16)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	8	**100.00**

SECTION B (English lecturers only)

Table 17. **Opinions of English lecturers about the effectiveness of current ESL courses in order to improve students' proficiency in English (question 17)**

Option	Frequency	Percentage
1. Ineffective	1	**25.00**
2.	1	**25.00**
3.	1	**25.00**
4.	0	0.00
5. Very effective	1	**25.00**

Table 18. **Opinions about what framework for ESL development is most relevant at technikons at present (question 18)**

Option	Frequency	Percentage
1. Separate, General course	0	0.00
2. Separate, ESP course	1	25.00
3. Integrated, team taught course	3	**75.00**
4. Other	0	0.00

Table 19. **Opinions about whether team teaching can be an effective way to teach ESP courses (question 19)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	4	**100.00**

Table 20. **Willingness of English lecturers to become involved in team teaching with Engineering lecturers (question 20)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	4	**100.00**

SECTION C (Engineering lecturers only)

Table 21a. **Opinions of Engineering lecturers about whether their students experience ESL problems (question 21a)**

Option	Frequency	Percentage
1. No	0	0.00
2. Yes	4	**100.00**

Table 21b. **Impressions of lecturers about what percentage of Engineering students experience ESL problems (question 21b)**

Option	Frequency	Percentage
00.00%	0	0.00
15.00%	1	**25.00**
30.00%	0	0.00
50.00%	0	0.00
60.00%	1	**25.00**
65.00%	0	0.00
70.00%	1	**25.00**
75.00%	0	0.00
80.00%	1	**25.00**
90.00%	0	0.00
99.00%	0	0.00
100.00%	0	0.00

Table 22a. **Opinions of Engineering lecturers about their own ability to identify ESL problems experienced by their students (question 22a)**

Option	Frequency	Percent
1. No	0	0.00
2. Yes	4	**100.00**

Table 23. **Opinions about whether English proficiency influences students' ability to cope with technikon studies (question 23)**

Option	Frequency	Percentage
1. No	1	25.00
2. Yes	3	**75.00**

Table 24. **The division of responsibility for the ESL development of Engineering students (question 24)**

Option	Frequency	Percentage
1. English specialists	1	25.00
2. Engineering specialists	0	0.00
3. All parties teaching the students	3	75.00

Table 25. **Engineering lecturers' acceptance of the assistance of an English specialist to identify and address ESL problems in class (question 25)**

Option	Frequency	Percentage
1. No	1	25.00
2. Yes	3	**75.00**

Table 26. **The willingness of Engineering lecturers to become involved in team teaching with English lecturers (question 26)**

Option	Frequency	Percentage
1. No	1	25.00
2. Yes	3	**75.00**