AN EVALUATION OF THE INTERNAL VALIDITY OF SPECIFIC LEARNING OUTCOMES IN PHASE II OF A REVISED UNDERGRADUATE MEDICAL CURRICULUM

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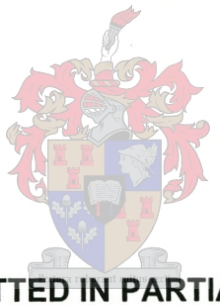

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DECLARATION

I, THE UNDERSIGNED, DECLARE THAT THE WORK CONTAINED IN THIS THESIS IS MY OWN ORIGINAL WORK AND HAS NOT PREVIOUSLY IN ITS ENTIRETY OR IN PART BEEN SUBMITTED AT ANY UNIVERSITY FOR A DEGREE

SUMMARY

The Faculty of Medicine at the University of Stellenbosch has implemented an extensively revised undergraduate medical curriculum. Exit outcomes, that have been entitled the *Profile of the Stellenbosch Doctor*, have been formulated for the programme. The revised curriculum is presented in three phases. Phase I involves the study of non-clinical subjects under the guidance of the Faculties of Natural Sciences and Economic & Management Sciences. Phase II involves the study of subjects that lay the groundwork for the third phase. Phase III involves the study of pre-clinical and clinical subjects in an integrated fashion. The intended outcomes of phases II and III were elaborated by the formulation of specific learning outcomes.

Determining whether the specific outcomes formulated for each module are achieved will be one aspect of quality assurance in the revised curriculum. This could be done by investigating the relationship between assessment and the specific outcomes. If, however, specific outcomes for the various modules are not congruent with the exit outcomes for the programme, then student assessment will be invalid as regards the programme outcomes.

This study therefore entailed a formative evaluation of part of phase II of the revised curriculum. The aims of the study were, firstly, to determine the degree of congruence between the specific outcomes formulated for phase II and the exit outcomes for the programme and, secondly, to explore why the observed degree of congruence exists.

The research strategy employed was a case study. The research techniques used were a document analysis and two questionnaire surveys.

The study found that most specific outcomes formulated for phase II of the curriculum are congruent with one or more exit outcomes for the programme. However, few of the exit outcomes are addressed to any great extent by specific outcomes. This raises the concern that assessment of students based on the specific outcomes as presently formulated might not demonstrate development of students towards achievement of the exit outcomes.

There are indications that this lack of congruence could be due to i) a large number of competing demands on lecturers' time; ii) lecturers not wanting to spend time doing work prioritised by others as important; iii) perceptions that work related to the revised curriculum is being forced on staff without necessarily consulting them; iv) a lack of reward for good teaching; v) the perception that the strategies adopted for the revised curriculum will not necessarily benefit students.

Recommendations are made as to how these findings could be confirmed and strategies developed that could be utilised to ensure a greater degree of congruence between the specific and exit outcomes in future.

OPSOMMING

Die Fakulteit Geneeskunde van die Universiteit Stellenbosch het 'n omvangryke hersiening van hul voorgraadse geneeskundige kurrikulum geïmplementeer. Uitgangsuitkomste, getiteld die *Profiel van die Stellenbosch Dokter*, is vir die program geformuleer. Die hersiene kurrikulum word in drie fases aangebied. Fase I behels die studie van nie-kliniese vakke onder leiding van die Fakulteite van Natuurwetenskappe en Ekonomiese- & Bestuurswetenskappe. Fase II behels die studie van vakke wat die grondwerk lê vir die derde fase. Fase III behels die studie van prekliniese en kliniese vakke op 'n geïntegreerde wyse. Die beoogde uitkomste van fases II en III is uitgespel deur die formulering van spesifieke leeruitkomste.

Die bepaling van of die spesifieke uitkomste wat vir elke module geformuleer is, bereik word, sal een aspek uitmaak van gehalteversekering in die hersiene kurrikulum. Dit sou gedoen kon word deur die verwantskap tussen assessering en die spesifieke uitkomste te ondersoek. Indien die spesifieke uitkomste vir die verskeie modules egter nie met die uitgangsuitkomste vir die program kongruent is nie, dan sal studentassessering ongeldig wees wat betref die uitkomste van die program.

Hierdie studie het dus 'n formatiewe evaluering van deel van fase II van die hersiene kurrikulum behels. Die doelstellings van die studie was om, eerstens, die graad van kongruensie tussen die spesifieke uitkomste wat vir fase II geformuleer is en die uitgangsuitkomste vir die program te bepaal en, tweedens, om ondersoek in te stel na waarom die waargenome graad van kongruensie bestaan.

Die navorsingsstrategie wat gebruik is, is 'n gevallestudie. Die navorsingstegnieke wat gebruik is, is 'n dokument analise en twee vraelys ondersoeke.

Die studie het vasgestel dat die meeste spesifieke uitkomste vir fase II van die kurrikulum geformuleer wel met een of meer uitgangsuitkomste kongruent was. Min van die uitgangsuitkomste is egter in enige groot mate deur spesifieke uitkomste aangespreek. Die wek besorgdheid dat assessering van

studente gebaseer op spesifieke uitkomste soos dit tans daar uitsien, nie noodwendig die ontwikkeling van studente in die rigting van bereiking van die uitgangsuitkomste sal demonstreer nie.

Daar is aanduidings dat hierdie gebrek aan kongruensie die gevolg mag wees van: i) 'n groot aantal kompeterende eise op dosente se tyd; ii) dat dosente nie tyd wil wy aan werk wat deur ander as belangrik bepaal is nie; iii) persepsies dat werk wat met die hersiene kurrikulum verband hou op personeel afgedwing word sonder om hulle te raadpleeg; iv) 'n gebrek aan beloning vir goeie onderrig; v) die persepsie dat strategieë wat gebruik word vir die hersiene kurrikulum nie noodwendig tot voordeel van studente sal strek nie.

Aanbevelings word aan die hand gedoen oor hoe hierdie bevindinge bevestig kan word en hoe strategieë ontwikkel kan word wat benut sal kan word om in die toekoms 'n groter mate van kongruensie tussen spesifieke en uitgangsuitkomste te verseker.

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ORIENTATION, CONTEXTUALISATION AND PROBLEM FORMULATION

1.1 BACKGROUND

The Medical School of the University of Stellenbosch (hereafter referred to as the Medical School) has been undertaking a revision of its undergraduate medical curriculum since 1994. This endeavour was prompted by a shift in national health care priorities and prevalent international trends in medical education. The revision was undertaken as a four-phase process by a number of task teams and working groups.

Phase 1 of the planning process started in 1994 and entailed an environmental analysis with consideration of local, national and international trends and needs impinging on medical practice and education. Phase 2 of the planning process resulted in a set of exit outcomes* for the new programme, that have been entitled "*The Profile of the Stellenbosch Doctor*". A survey was undertaken amongst students and alumni to test the relevance and acceptability of this *Profile*. Certain changes were made to the *Profile* based on this survey, resulting in the exit outcomes reflected in Appendix A.

A number of principles and/or guidelines for curriculum reform (Appendix B) and a number of priorities for the educational approach (Appendix C) were adopted during phases 3 and 4 of the planning process. These phases, which also resulted in a model for implementation, started in 1997. Many priorities identified by task teams and working groups at the Medical School overlap with priorities identified elsewhere both before and since planning started (Cape Town, 1995; World Federation for Medical Education, 1994; Education Committee, 1993; Yaounde, 1994). One of the priorities identified by the Medical School is that "*modules and themes must be composed and presented in an entirely objective-directed manner. Objectives must be clearly specified and made available to students*" (Appendix C). For the purposes of the curriculum, an "objective" was defined as "*... a very specific statement which clearly spells out what the student must "know" or "can do" after completion of the theme. The theme objectives must be written in such a way that the reader, especially*

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* Key concepts will be defined in Chapter 2

*if it is the student, can clearly deduce what will be expected of the student during evaluation (*sic)" (Zevenlodge working group, 1998: paragraph 1.2.4; translated by the author). This description clearly corresponds to the concept of learning outcomes[#].

The further development of the curriculum has been based on the concept of outcomes. To avoid confusion, the term "outcomes" will be used from here on and should be read to encompass the "objectives" referred to in curriculum documentation, notwithstanding the clear distinction drawn between the two terms in the literature. The assumption is made for this study that the term "objectives" was used incorrectly in Medical School documentation on the curriculum and that the concept has been superseded by that of "outcomes".

1.2 IMPLEMENTING CHANGE

Following the determination of principles and priorities, the detailed planning of the curriculum was undertaken. The curriculum was divided into three phases. The first (phase I) is one semester long and involves the study of non-clinical subjects under the guidance of the Faculties of Natural Sciences and Economic & Management Sciences. Phase II is two semesters long and involves the study of subjects that lay the groundwork for the third phase. Phase III is nine semesters long and involves the study of pre-clinical and clinical subjects in an integrated fashion.

The planning of the content of the curriculum proceeded as follows. Phase I was planned first, based on what background knowledge was deemed necessary for students to undertake the rest of the curriculum. The planning of phases II and III was undertaken separately from this by module teams comprising lecturers from the Medical School. The decision was taken that "*the maximal extent of pre-clinical knowledge/information/input must be built into modules and only the parts that cannot be meaningfully included therein must be moved as "subject terminology" to the pre-clinical portion of the course that follows the first six months*" (Appendix C). System-based themes were thus identified for phase II and phase III and formed the basis upon which modular content was planned. Phase III was planned first. In accordance with the principles that had been adopted, all information relating to the modular theme from any subject (pre-clinical or clinical) that could sensibly be presented in an integrated fashion within the module was, where possible,

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Key concepts will be defined in Chapter 2

incorporated into the module. Information that could not be presented in the phase III module, or that was of importance to more than one phase III module was "packed" into so-called "phase II baskets". The phase II basket for a module was thus a description of the content that had to be covered during that module in phase II of the curriculum. The content of these phase II baskets formed the basis upon which phase II modules were planned. Thirteen modules were designed for phase II.

The intended outcomes of phase II and phase III modules were subsequently elaborated by the generation of specific learning outcomes[§] by the module teams. The module teams were expected to take cognisance of the content that had been allocated to the various modules, the *Profile of the Stellenbosch Doctor* and the principles and priorities adopted by the Medical School during this process. The curriculum was implemented for the first time in 1999 and the first students undertaking the curriculum completed phase II in June 2000.

1.3 THE NEED FOR THE RESEARCH: MAINTAINING THE MOMENTUM OF CHANGE - MONITORING AND REVIEW

An enormous amount of time and effort has been invested in the revision of the undergraduate medical curriculum at the University of Stellenbosch. While the principles on which this revision has been based are, on the face of it, sound[‡], this is no guarantee that the planned revision will be successfully implemented. On the contrary, there is reason to suspect that any attempt at revision of a medical curriculum has a great chance of failure. There have been numerous attempts at curriculum revision in medical education in the past, both nationally and internationally. Many stumbling blocks have been found to thwart curriculum revision including a lack of monitoring and revision and academic staff resistance (Blondell, Mason, Looney & Reed, 1993; Bloom, 1989; Friedman *et al.*, 1990; Grant & Gale, 1989; Kaufman *et al.*, 1989; Mårtenson, 1989; Mennin & Kaufman, 1989; Pinto Pereira, Telang, Butler & Joseph, 1993; Saffran, 1991; Schwartz, Heath & Egan, 1994; Tresolini & Shugars, 1994).

A previous attempt at curriculum revision at this medical school in 1984 was not altogether successful, partly due to a lack of monitoring and revision (W. L. van der

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§ Key concepts will be defined in Chapter 2

‡ No attempt will be made in this limited study to evaluate these principles

Merwe, personal communication). With this in mind, the planners of the current change envisioned the creation of "*an appropriate Faculty structure that continuously monitors and adapts the core curriculum as regards relevance and content/presentation/evaluation*" (Appendix B). A question that arises is what this Faculty structure should monitor. It is this question that this study seeks to address in part.

The planning framework, of which some highlights are described in the appendices B and C, gives a range of factors upon which an evaluation strategy can be built. However, it is neither within the scope of this study to design and/or execute an evaluation† of the entire curriculum, nor possible at this stage, as the curriculum has only been partially implemented. Thus, the question arises, what contribution can this study make to the monitoring process. This contribution would be formative and contribute to internal, and ultimately external, quality assurance.

Literature on quality assurance of educational programmes refers to determining whether students have achieved the stated outcomes, e.g., evaluating whether student assessment at the end of the programme reflects the programme's outcomes (Harden, Crosby & Davis, 1999; Hay & Strydom, 1999; Pratt, 1994; Sudweeks & Diamond, 1998). If the monitoring process for this curriculum revision only starts after the first students complete the curriculum, however, practitioners may establish undesirable new practices or old practices in new guises and be as resistant to change as is the case in an established curriculum. To ensure the successful implementation of the curriculum as envisaged in the planning process, it will be crucial that monitoring is continuous.

Given that the revised curriculum is outcomes-based, with exit outcomes already established, one aspect that it will be crucial to monitor will be that the learning outcomes formulated for each module are achieved. An assumption that is frequently made is that unless assessment practices enforce the outcomes of a curriculum, students are unlikely to take the intended outcomes of the curriculum seriously. Most lecturers are likely to attest to the validity of this assertion based on their experience with students. The result is that the outcomes, however noble, will not be achieved. The goals that the Medical School has set with the formulation of the *Profile of the Stellenbosch Doctor* are laudable, but many, including development of higher order

† Key concepts will be defined in Chapter 2

cognitive skills and appropriate attitudes, are difficult to achieve and to assess. The risk is that outcomes will not be formulated for these aspects of the *Profile* and that no attempt will be made during the assessment of student learning to determine whether or not students have achieved these outcomes.

At this stage, it would only be possible to evaluate whether assessment of students is in line with specific outcomes formulated for the modules. There is a fundamental problem in only evaluating student assessment, however. Assessment may be both valid and reliable when measured against the specific outcomes formulated for the various modules of the programme. *If, however, the specific outcomes for the various modules are not congruent with the exit outcomes for the programme, then student assessment will be invalid as regards the programme outcomes.* There has been no systematic process to determine the extent to which the specific outcomes of each module are congruent with the exit outcomes for the programme. Thus, even if the assessment strategies used in modules are appropriate for the modular outcomes, they will not necessarily demonstrate that the student has developed towards, or achieved, the exit outcomes. To ensure the internal validity[ø] of student assessment as a measure of the development towards, or achievement of, the programme's exit outcomes, all specific outcomes for modules should be congruent with the exit outcomes for the programme, i.e., the *Profile of the Stellenbosch Doctor*.

1.4 THE PURPOSE OF THE STUDY

The purpose of this study is to undertake a limited evaluation of the specific outcomes of phase II (i.e., the second and third semesters) of the revised undergraduate medical curriculum. This evaluation will entail a determination of the internal validity of the specific outcomes, specifically with regards to the exit outcomes already defined for the programme. This will be done with a view to aiding the monitoring of the curriculum implementation process. It is envisaged that this will contribute to the current effort at curriculum reform in the Medical School of the University of Stellenbosch. The experience so gained could also be of value to other medical schools in the country undertaking curriculum reform and using specific and exit outcomes.

ø Key concepts will be defined in Chapter 2

1.5 LIMITATIONS AND DELIMITATIONS

An extensive evaluation of the curriculum and its implementation would involve, amongst other things, the use of the various criteria laid out during the planning process (e.g., Appendices B and C). An undertaking of this nature is beyond the scope of this study.

Although international literature will be reviewed, it is likely, as Schwartz *et al.* (1994) pointed out, that much work on curriculum review, particularly in medical schools, has not been formally reported. This limits the usefulness of the literature as a resource in this regard. Given the extent of this study, however, it will not be practical to render information from people who have been involved in unreported programmes of curriculum revision.

The process of curriculum design is not going to be evaluated in this study, while similarly, the validity of the *Profile* is also not going to be evaluated.

No attempt will be made to evaluate the formulation of individual specific outcomes, nor will any attempt will be made to evaluate the achievement of these outcomes.

1.6 RESEARCH GOALS

1.6.1 To determine the degree of congruence between the specific outcomes of phase II of the new undergraduate medical curriculum at the University of Stellenbosch and the exit outcomes as stated in the *Profile of the Stellenbosch Doctor*.

1.6.2 To determine factors that have influenced the congruence or lack thereof between the specific and exit outcomes.

1.6.3 To recommend possible revisions of the outcomes of phase II of the curriculum to improve its internal validity.

1.6.4 To recommend adaptations to the implementation process to enhance congruence between specific and exit outcomes.

In Chapter 2, key concepts will be defined and literature relevant to this study summarised. Methodology will be described in Chapter 3 and results reported and discussed in Chapter 4. Chapter 5 will be devoted to conclusions and recommendations.

CHAPTER TWO:
KEY CONCEPTS AND LITERATURE REVIEW

2.1. DEFINITION OF KEY CONCEPTS

2.1.1. Evaluation

Evaluation can address policies, programmes, projects or elements of these entities (Shaw, 1999). Worthen (cited in Pratt, 1994: 297) wrote that evaluation "*can be defined most simply as the determination of the worth of a thing*" and Punch that with evaluation, a researcher "*aims to assess the effectiveness of different actions in meeting needs or solving problems*" (1998: 143). The purpose of evaluation may be to determine whether an observed change is the result of a particular intervention or to gain understanding of issues related to the entity being studied and of attempts to address these issues either presently or previously (Shaw, 1999). Mason and Bramble (1989) maintain that in an educational context, evaluation can be undertaken for four purposes, i.e., formative (to provide information for improvement of the entity being studied), summative (to help management make decisions about the entity), administrative (dealing with the exercise of authority and responsibility, e.g., staff evaluation) and socio-political (developing information for the purpose of supporting a political view with respect to the entity being studied). The term evaluation is being used here to denote a formative evaluation of an element of the revised undergraduate medical curriculum, i.e., the congruence between the specific and exit outcomes.

2.1.2. Internal validity

The term internal validity is not being used here in its technical sense in the context of research design (Mason & Bramble, 1989; Punch, 1998). It is rather being used to refer to the validity of "data" (Punch, 1998). The "data" in this case are the specific outcomes of phase II of the revised undergraduate medical curriculum. "Validity" has to do with "*how well ... these data represent the phenomena for which they stand*" (Punch, 1998). The "phenomena" for which the specific outcomes stand are taken as

the outcomes of medical education. These outcomes could be internationally agreed outcomes for medical education (should such universally agreed outcomes exist). However, in this instance, the outcomes are the exit outcomes for the programme, formulated within the Medical School. Thus, the concept "internal validity" is being used to denote validity with regards to criteria internal to the entity being studied, i.e., the revised undergraduate curriculum of the Medical School at the University of Stellenbosch. This term is used to distinguish this process from external validity, i.e., validity with regards to criteria external to the entity being studied (e.g., internationally agreed outcomes).

2.1.3. Learning outcomes

Learning outcomes have been described as statements that describe what the learner knows, understands or can do, or appropriate attitudes that they may have learnt, after going through a learning experience (Hadrill, in Knight, 1995: 168; Lubisi, 1997: 24). Spady (1994: 191), writing in the context of school education, describes outcomes as "*learning results that are clearly demonstrated at or after the end of an instructional experience*". The term "specific outcomes" will be used here to distinguish outcomes written for a part of an educational programme from exit outcomes (described below).

Spady (1994: 190) defines exit outcomes as "*learning demonstrations that define the system's ultimate expectations for students, occurring at or after the end of students' school careers*". The term is used here to denote the outcomes that students are expected to achieve by the end of the revised undergraduate medical curriculum as formulated in the *Profile of the Stellenbosch Doctor*.

2.2. LITERATURE REVIEW

The purpose of this study i.e., to evaluate an aspect of outcomes formulated for phase II of the revised undergraduate medical curriculum, presupposes that the use of outcomes adds value to the curriculum. A review was undertaken of literature on the use of learning outcomes to confirm this.

A key question with an undertaking of the extent of the current revision of the undergraduate medical curriculum at the University of Stellenbosch is how quality

will be ensured during the implementation process. A review was undertaken of literature on curriculum reform and quality assurance.

Finally, the focus of the study is on the congruence or lack thereof between specific and exit outcomes. A review was undertaken of literature on factors that influence the formulation of specific outcomes that are congruent with exit outcomes.

2.2.1. The use of learning outcomes

The Medical School has adopted the principle that "*modules and themes must be composed and presented in an entirely* [outcome]-*directed manner.* [Outcomes] *must be clearly specified and made available to students*" (Appendix C). The use of learning outcomes is thus clearly expected to hold certain advantages. These advantages may be for the Medical School and for the students.

Advantages for the Medical School

One of the principles underlying the reform process is that the "*curriculum will be continuously adapted with a view to constantly remaining relevant*" and that this be done by the creation of "*an appropriate Faculty structure (control structure) that continuously monitors and adapts the core curriculum as regards relevance and content/presentation/evaluation*" (Appendix B). In the specific context of the revised curriculum, having access to specific outcomes will allow this monitoring structure to determine whether the principles laid down for the revision process have been adhered to. One principle is that "*a core curriculum be developed that is relevant to the needs of the total Southern African community*" with, as a guideline, "*concentrate on "must" knowledge in modules/themes*" (Appendix B). Having outcomes specified for all modules will allow determination of whether modules represent a core curriculum and help determine whether modules are relevant to the needs of the Southern African community. This is in keeping with Harden *et al.'s* opinion (1999) that outcomes-based education can help maintain relevance in a curriculum and highlight neglected areas.

Another principle is that "*the maximal extent of pre-clinical knowledge/information/ input must be built into modules and only the parts that cannot be meaningfully included therein must be moved as "subject terminology" to the pre-clinical portion*

of the course that follows the first six months" (Appendix C). Outcomes will also make the process of determining what information should be presented in phase II, and what as part of the integrated phase III, considerably easier than would have been the case with the previous curriculum. There were no indications in writing as to what most of the previous curriculum entailed. Trying to determine what should be moved and to where would have been an almost impossible task.

A further advantage with the use of outcomes will be the ability to ensure the validity of assessment. The validity of assessment is particularly important given that assessment fulfils both a certification and a licensing function at a medical school. Content validity has to do with the degree to which assessment adequately samples course outcomes (Wergin, in McMillan, 1988; Newble and Cannon, 1995). To achieve content validity, it is necessary that the desired outcomes first be clearly defined and unambiguous (Ashcroft, 1995; Hadrill, 1995). This includes the formulation of more complex and demanding affective and higher order cognitive outcomes, not just easily definable lower order cognitive outcomes. It also includes the difficult task of formulating outcomes to address attitudes and values.

Construct validity has to do with the extent to which a test measures the amount learned and not some extraneous skill like test-taking skill or neatness (Wergin, in McMillan, 1988; Newble and Cannon, 1995). Achieving construct validity requires that there is the capacity to measure or provide evidence of the attainment of learning outcomes (Ashcroft, 1995; Hadrill, in Knight, 1995). While an increase in factual knowledge can be demonstrated relatively easily, it is far more difficult to demonstrate attitude change or the acquisition of cognitive skills (Brown & Knight, 1995).

Thus, if an assessment is to be valid, it should be carefully matched with course outcomes and a range of assessment methods used that are appropriate for the outcomes (Newble & Cannon, 1995). Specific outcomes at least provide predefined criteria that can form the basis of a valid assessment system.

Another advantage of specifying outcomes is that they provide criteria that can contribute to evaluation of the curriculum. By providing information about the expected end product of an educational process, criteria are provided by which that

product can be judged, which emphasises accountability (Harden *et al.*, 1999; Robertson, cited in Atkins, Beattie & Dockrell, 1993).

Advantages for students

Assessment probably has a more profound effect on what and how students learn than other educational activities. Ramsden (1992: 70) succinctly pointed out that "*students will study what they think will be assessed*". Reference has thus been made to the various curricula that exist for a programme, e.g., the curriculum that is planned, the curriculum that is taught and the "*hidden curriculum*" (Snyder, cited in Ramsden, 1992: 67) that students perceive by means, for example, of what is assessed. Specific and exit outcomes can provide students with clear guidelines as to what it is that they are expected to learn (Atkins *et al.*, 1993). If the stated outcomes are assessed, then, with an outcomes-based system, the potential exists to ensure that the curriculum that is planned (and stated using outcomes) and the curriculum that is assessed are the same.

2.2.2. Curriculum reform and quality assurance

Quality implies the existence of criteria by which its presence or absence will be determined. These criteria could be extrinsic (judgements made by higher education consumer groups) or intrinsic (the mission and programme goals of a particular institution) (Lategan, 1997).

Criteria that could be used to evaluate educational programmes

Various criteria have been proposed that could be utilised in the evaluation of educational programmes (Dolmans, Gijselaers & Schmidt, 1993; Gerrity & Mahaffy, 1998; Hay & Strydom, 1990; Kassebaum, 1990; Pratt, 1994; Sudweeks & Diamond, 1998). This study is not concerned with the evaluation of an entire programme, in this case the revised undergraduate medical curriculum, however. It is not possible to conduct such an evaluation at this stage, as the curriculum has only been partially implemented. This is essentially a formative evaluation which could guide the further process of implementation (Jones & Ratcliff, 1999).

The question is what should be evaluated. Different terminology is used by different authors but typical criteria proposed by different authors include the following: a determination of whether there are exit outcomes stated for the programme as a whole; whether the content and/or specific outcomes of sub-elements of the programme match these stated exit outcomes; whether different phases of the curriculum adequately address content and/or specific outcomes appropriate to that phase; whether the learning experiences offered are likely to help students achieve the stated outcomes and whether, in the final instance, students achieve the stated outcomes (Harden *et al.*, 1999; Hay & Strydom, 1999; Pratt, 1994; Sudweeks & Diamond, 1998).

Evaluating outcomes as part of an evaluation of an educational programme

It would only be possible to evaluate a sub-unit of the revised curriculum at this stage, i.e., phase II, as this is the only part of the curriculum offered by the Medical School that has been completely implemented at least once. Given the focus on outcomes in the revised curriculum, the element of instructional quality that it would be logical to evaluate would be educational outcomes, perhaps most conveniently determined by student performance in assessment. The value of test scores as part of an evaluation of a curriculum is limited, however.

Poor performance on a test may be the result of various factors, including a lack of effort by students, inappropriate level of difficulty of test items or inadequate match between the content of the course and assessment (Dolmans *et al.*, 1993). It is not easy to objectively determine the effort that students put into their learning or estimate the degree of difficulty of test items. It is easier (although not easy) to objectively determine the degree of match between stated outcomes and what is assessed. This assumes both that the curriculum has been spelled out, for example, in the form of outcomes, and that what is actually covered in the classroom matches the outcomes put on paper.

Determining congruence between outcomes and assessment can have limited value

Although a limited undertaking, it would nonetheless appear to be worthwhile to make the effort to determine the degree of match between the stated outcomes and what is assessed. A factor derived from how time is spent in the classroom and the overlap between the curriculum and a test was found to be more highly correlated with achievement gain than other factors (Cooley & Leinhardt, 1980, cited by Dolmans *et al.*, 1993: 451). The value of only determining congruence between specific outcomes and assessment can be limited, however. If the specific outcomes are not related to the exit outcomes for a programme, then it is of little relevance whether or not these specific outcomes are covered in assessment. Even if assessment addresses specific outcomes and specific outcomes are related to exit outcomes, there can still be problems with validity. If the specific outcomes of a phase of the curriculum do not adequately address all exit outcomes appropriate to that phase, then determining congruence between specific outcomes and assessment will still fall short of indicating that the curriculum is achieving everything that is intended. Thus, determining the existence *and extent* of congruence between specific outcomes and exit outcomes represents a first step in a process. Once this has been ascertained, subsequent determination of congruence between assessment and specific outcomes will allow the deduction that success in assessment of specific outcomes demonstrates development towards achievement of the exit outcomes. Until such time as students have completed the revised curriculum and it is possible to determine whether the exit outcomes have been achieved or not, this appears to be the only way to determine whether or not the implementation process is achieving what is envisaged.

Factors affecting an evaluation

Both the audience for an evaluation and the purposes of the evaluator are likely to influence the focus of an evaluation (Ashcroft, 1995). In this instance, the audience is the management structure within the Medical School and the purpose is to perform an evaluation of part of a revised curriculum in the process of implementation. The intention is to contribute to the broader process of quality assurance as the revised curriculum is implemented. Ultimately, this study could contribute to an external

process of quality assurance for an external audience, although this is not the primary aim of this study.

The timing of an evaluation is important, particularly given what is to be evaluated (Ashcroft, 1995). If students are the subject of an evaluation and the evaluation is performed very early in the process of implementation of a programme, the results could be misleadingly negative. If the enthusiastic staff promoting the process are evaluated, the results could be misleadingly positive. This is not considered a problem here, however. The focus of this study is the result of the endeavours of lecturers. These lecturers can probably be considered "average" in their commitment to the implementation of the revised curriculum insofar as they are not part of the driving force behind the change process, but have rather been engaged to help plan and implement the envisioned changes.

The context in which an evaluation takes place can also influence results, e.g., evaluating teaching in a setting where teaching activities are well resourced and rewarded (Ashcroft, 1995). The context in which this evaluation takes place is an extensive change being implemented at a time when a number of external problems beyond the control of the Medical School have impinged on the activities of the Medical School. In particular, Medical School staff have had to spend an enormous amount of time dealing with staff cuts at the teaching hospital associated with the Medical School as well as threatened closure of the Medical School. This has undoubtedly detracted from the ability of staff to give as much attention as would be ideal to the implementation process.

2.2.3. Factors that influence the formulation of specific outcomes that are congruent with exit outcomes

A recent review found that there is surprisingly little literature addressing the characteristics of successful curricular change in higher education (Bland, Starnaman, Wersal, Moorhead-Rosenberg, Zonia & Henry, 2000). It is thus hardly surprising that no literature was found on what might influence lecturers in how they write outcomes and particularly what influences them to consider exit outcomes or other factors when formulating specific outcomes. Descriptions were found of how exit outcomes were formulated for educational programmes (Harden *et al.*, 1999; Mandin & Dauphinée,

2000; Smith & Dollase, 1999; Sudweeks & Diamond, 1998) and of institutional factors associated with well formulated outcomes (Kassebaum, Eaglen & Cutler, 1997) but none on the process of translating exit outcomes successfully to the specific outcomes. Therefore, for the purposes of this study, the assumption is made that, because the formulation of specific outcomes is undertaken as part of the process of curriculum revision, factors that could influence the success of curriculum revision could influence how specific outcomes are formulated.

Resistance from lecturers can present a major obstacle to the process of curriculum change (Kaufman *et al.*, 1989; Pinto Pereira, 1993; Saffran, 1991; Schwartz *et al.*, 1994; Tresolini & Shugars, 1994) and can be due to a number of factors. It can be due to non-participation in planning (real or perceived) (Grant & Gale, 1989; Mennin & Kaufman, 1989; Schwartz *et al.*, 1994). Resistance to change can also exist because participants do not feel ownership of the new programme (Grant & Gale, 1989; Mennin & Kaufman, 1989) or are not committed to the new programme (Grant & Gale, 1989). This may be because those involved and affected by the process are not given an opportunity to critically review the process (Mennin & Kaufman, 1989), to point out shortcomings which need correction (Mårtenson, 1989) or to participate in the formulation of suggestions for action (Mårtenson, 1989). In this instance, although the process has been as inclusive of lecturers as practically possible, not all lecturers have been involved in the planning process. They may be resistant if they are not convinced of the value of the new programme, i.e., if change is perceived as inappropriate (Grant & Gale, 1989; Mennin & Kaufman, 1989). Lecturers may be resistant because they are not unhappy with the present way of operating and do not perceive the need for change (Grant & Gale, 1989).

Participation or resistance can also be influenced by the perception of where change originates (Grant & Gale, 1989). It can be influenced by protection of vested interest or perceived threats to security, status or prestige (Grant & Gale, 1989; Mennin & Kaufman, 1989). It can also emanate from the fact that individuals pay more allegiance to a department than an institution, given that departments determine promotion and academic and financial rewards (Mennin & Kaufman, 1989).

A lack of incentives or rewards for participation can lead to resistance, particularly as participation in curriculum reform can impact negatively on research and patient care

(Finucane, Allery & Haynes, 1994; Mennin & Kaufman, 1989). Only 12% of teachers were found to believe that recognition as a good teacher is beneficial for career advancement (Finucane *et al.*, 1994). Finucane *et al.* (1994) did not consider resistance likely to be due to teaching being less satisfying than other activities, as 72% of teachers were found to consider teaching as satisfying as other activities and 49% indicated that they would undertake more teaching, given the opportunity. Research in the laboratory is also more highly valued than equal efforts in the educational laboratory (Mennin & Kaufman, 1989).

Resistance can originate from perceptions that innovations are too costly in terms of available resources or staff time (Finucane *et al.*, 1994; Mennin & Kaufman, 1989), particularly in light of the fact that research productivity is more generously rewarded than educational activities (Mennin & Kaufman, 1989). Promotion is based more on research than on education - teaching competence may not even be assessed for promotion (Mårtenson, 1989; Mennin & Kaufman, 1989). It is a sad commentary on the priorities of institutions, but as valid today as when it was written, that "*the quality of instruction is now evaluated in educational institutions more for administrative and personnel reasons than for developing and improving professional competence and institutional effectiveness*" (Goldman, 1982).

Lack of reward for teaching is as much an issue at the University of Stellenbosch as elsewhere. Promotion at the University of Stellenbosch is based almost exclusively on research performance. This was reinforced by a recent notice from Human Resources regarding *ad hominem* promotions to associate professor and senior lecturer (University of Stellenbosch, 1998a). The format provided for summarising a candidate's curriculum vitae makes no provision for information about teaching activities and the notice does not even offer the option that a candidate could submit a teaching portfolio as part of their application, much less require this. Furthermore, the application form for staff placed on the University's web site (University of Stellenbosch, 2000a) requests information on an applicant's leisure activities but does not even specifically refer to teaching experience.

This is in keeping with a recently released document (2000b), that has been approved by the University's Council as a framework for future planning, which indicates that the University considers research its highest priority. There has been a drop in

research output at the university as a whole recently, including the Medical School (University of Stellenbosch, 1998b) and research has been given very high priority by the University to rectify this (University of Stellenbosch, 1999). Of five strategic issues identified by the committee that drafted the document, one (4.1.1.2) refers to "*the (*University of Stellenbosch's) *aspiration to be a research-orientated university of world format (*sic) ..." (translated by the author). Another makes it clear that teaching will be subjugated to the needs of research viz. "*4.1.1.3 The (*University of Stellenbosch's) *need for a University-wide re-organisation of the teaching portfolio and related organisational structures to bring it all in line with research-directedness, with the programme-based approach of teaching and with the demands of greater accessibility for students*" (translated by the author).

This emphasis on research is further strengthened where further strategic priorities for research are identified, including "*4.2.2.2 The expansion of financing, infrastructure and technology for research*" and "*4.2.2.4 The placing of a premium, at appointment and promotion, on the extent and the quality of candidate's research activities and research results*" (University of Stellenbosch, 1999). No similar strategic priorities are identified for teaching despite the University's vision of being "*characterised by quality teaching and the continual renewal of teaching programmes and the creation of opportunities for effective teaching and learning*" (University of Stellenbosch, 1999) (translated by the author). There is currently no policy on staff development in the Medical School, other than the policies in place for the University as a whole. On the teaching front, this is limited to policy statements of commitment to teaching excellence and annual performance appraisal which is, however, rudimentary in its treatment of teaching.

Thus, although there is policy enunciating a commitment to teaching excellence, little or nothing is done to implement this policy. The approach at the University of Stellenbosch seems, as Seldin *et al.,* noted elsewhere, "*to be to talk about the importance of teaching but to evaluate faculty primarily on the basis of scholarly achievements and professional activities*" (1990: 199).

Another issue that can influence participation of lecturers in curriculum change is the degree of control that they feel over the way that it will affect them (Grant & Gale, 1989). Resistance may emanate from a fear of loss of control of teaching and

assessment in disciplinary context (Mennin & Kaufman, 1989). It can also be due to the actual values and ideals that guide people's behaviour with regards to education differing from those they publicly proclaim (Grant & Gale, 1989; Mennin and Kaufman, 1989). Other factors that can be associated with resistance to change is fear of the unknown or of the only partially understood (Grant & Gale, 1989). It can be due to a fear of becoming unskilled in an area in which people were previously skilled or due to not having the skills to implement the new programme (as a result of the introduction of unfamiliar teaching strategies) (Finucane *et al.*, 1994; Grant & Gale, 1989).

Chapter 3 will describe the methodology utilised to study the problems stated in Chapter 1, taking cognisance of the literature described above.

CHAPTER THREE:
METHODOLOGY

3.1 RESEARCH ORIENTATION

> "*Epistemological integrity* [gets] *meaningful research done right*"
>
> (Greene, cited in Shaw, 1999: 53)

One reason for assuming a particular stance regarding research orientation is to try to ensure focus, conceptual clarity and strong implementation (Shaw, 1999). Taking a stance is not an easy task, however, as there is much debate about the various positions that a researcher can adopt (Mouton, 1996; Nduna, 2000; Shaw, 1999).

An easier task, although perhaps one that avoids taking a particular stance, is that of selection of technique. In this regard, Mouton holds that "*the technique must be appropriate to the task at hand*" (1996: 38). The central question in this study is the degree to which the specific outcomes are congruent with the exit outcomes formulated for the programme. The interesting question is why whatever degree of congruence that is observed, exists. This leads to the choice of a case study as the research strategy (see on). The techniques to be employed include document analysis and surveys using questionnaires. These techniques tend to place this study in the qualitative paradigm. However, the data analysis techniques will include both descriptive and comparative statistics, which tend towards the quantitative paradigm. That the study seeks first to discover the degree of congruence between specific and exit outcomes and then to elucidate what may have contributed to this degree of congruence, also makes it questionable whether the study is, in the first instance, completely qualitative (Shaw, 1999).

An alternative conception would be that of "*different genres of programme evaluation*", i.e., postpositivist, critical, interpretivist and pragmatist (Shaw, 1999: 44-45; 83). However, the guidelines provided by Shaw (1999) do not allow the clear demarcation of this study into one or other tradition. An evaluation in the postpositivist tradition would try to determine whether a programme's outcomes are attained and if so, whether the attainment was attributable to the programme and

whether the programme was the most efficient way of doing so. Although this study was not an evaluation of an entire programme, it did endeavour to discover whether one of the outcomes, i.e., achieving congruence between the specific and exit outcomes, was accomplished. No attempt was made to discover whether this programme was the most efficient way of doing so, however.

An interpretivist evaluation would set out trying to discover how stakeholders experienced the programme (Shaw, 1999). Although this evaluation endeavoured to discover how stakeholders experienced some aspects related to the programme, this was not the primary aim of the study.

An evaluation in the critical tradition would investigate whether the programme is serving to maintain power and resource inequities and how the evaluation could challenge these inequities (Shaw, 1999). This was not what this study is setting out to do.

An evaluation in the pragmatic tradition would focus on discovering what elements of the programme worked well and which need improvement, as well as determining how effective the programme is with regards to the institution's goals and beneficiaries' needs. This evaluation tried to discover how well the process of achieving congruence between specific and exit outcomes worked, which did try to partially answer the question how effectively the programme addresses the institution's goals. Beneficiaries' needs were not addressed, although their experience of the process was studied indirectly.

This study thus fits some aspects of postpositivist, interpretivist and pragmatic traditions and although it does not comfortably fit in any one, it sits more comfortably with methodological pragmatism (Shaw, 1999) than the others. Although this could threaten the focus, it can be argued that the mix of techniques to be used will ensure quality research, given that the methods have been selected based on the nature of the research problem (Mouton, 1996; Chelimsky, cited by Shaw, 1999). Thus, the quality of the research follows methodological appropriateness (the steps to be taken to ensure that results are as far as possible valid and reliable will be described in the following sections of this chapter) rather than methodological orthodoxy (Shaw, 1999).

3.2 DATA COLLECTION

The unit of analysis for this study was a product of the endeavours of lecturers as part of the development of the revised curriculum, i.e., *the specific outcomes of the modules of phase II of the new medical curriculum*. The research strategy used was a case study. The research techniques used were document analysis and questionnaire surveys. This research is thus exploratory (Bless & Higson-Smith, 1995).

3.2.1. RESEARCH STRATEGY

The research strategy employed was a cross-sectional case study. The study is cross-sectional as, at this stage, phase II of the curriculum has only been completely presented once. Longitudinal studies will be possible in the future as phase II is repeated and as phase III is implemented fully and ultimately repeated. A case study was chosen for the following reasons.

Basis for the selection of a case study

Spotlight on one instance (Denscombe, 1998)**.** Phase II of the revised curriculum provides one instance of a set of outcomes. A survey of different medical schools implementing curriculum change would not be appropriate, as the models adopted are not uniform. Furthermore, the criteria against which the outcomes are to be compared, i.e. the exit outcomes, are unique to the Medical School at the University of Stellenbosch. The only other instance of a set of outcomes will be the outcomes formulated for phase III of the curriculum. This process is still in progress. Nonetheless, the insights gained by studying the outcomes of phase II may help to improve the formulation of new outcomes in phase III as well as the revision, if necessary, of outcomes in phase II as modules are repeated.

In-depth study (Denscombe, 1998)**.** Efforts were concentrated on an in-depth study of one aspect of the specific outcomes, i.e., the relationship between the specific outcomes and the exit outcomes in the programme.

Focus on relationships and processes (Denscombe, 1998)**.** The focus in this study was on the relationship between the specific and the exit outcomes. The processes by which these two sets of outcomes became or are related were studied indirectly by studying the attitudes of lecturers towards teaching and the revised curriculum and

determining what aspects of their work caused teaching staff stress. This was done based on the assumption that these factors could influence how they behave. It would have been ideal to study the process by which lecturers generated the specific outcomes. This could have been done more directly using interviews. Not studying the processes which led to specific outcomes is a potential flaw in this study as "*the real value of a case study is that it offers the opportunity to explain why certain outcomes might happen – more than just find out what those outcomes are*" (Denscombe, 1998: 31). The results of this study can be used to inform the design of such interviews as a logical extension of the work done here.

Natural setting (Denscombe, 1998). The exit and specific outcomes being studied already exist, having been generated for the purposes of the revised curriculum. There was thus not an experimental set-up where factors influencing the generation of outcomes could be compared. The researcher had little influence over the setting or processes influencing the generation of outcomes other than being involved in editing the study guides being produced for the revised curriculum, in which the specific outcomes are included. During this process, lecturers were encouraged to decide what elements of the *Profile* they could address in their modules and include these in outcomes wherever possible.

Multiple sources and multiple methods (Denscombe, 1998). A case study allows the utilisation of "*a variety of sources, a variety of types of data and a variety of research methods*" (Denscombe, 1998: 31). In this case, the primary source of data was the study guides produced for the curriculum, containing the specific outcomes for the various modules of phase II of the revised curriculum. The lecturers who produced the study guides were surveyed concerning their attitudes towards teaching and the revised curriculum and on aspects of their work causing stress. A potential weakness here was that the focus was on the degree of congruence between specific and exit outcomes and less on the factors that influenced how this came about. Both qualitative and quantitative data were examined in this case study and methods appropriate to both were utilised.

Basis for selection of this case.

This case was selected based on the fact that phase II of the curriculum is the only phase that has been fully implemented and for which outcomes have been generated. (No learning outcomes were formulated for phase I, as this phase is presented by other faculties). The only other case which could be selected locally would be phase III, either in part or in total. The implementation of phase III will only be completed in 2004. To use that as a case would mean allowing any problems that currently exist to be repeated several times and one aim of this research was to help make the implementation process as meaningful as possible. It would have been difficult to select other cases from other universities, based on the fact that there is little uniformity between revised medical curricula.

The boundaries of the case were very clear. There were a discrete number of specific outcomes that have been formulated and that are available in the study guides for the various modules.

Generalisability

The value of this case lies primarily in informing the further implementation of this revised medical curriculum. Primarily, the findings should be useful in informing the revision, if necessary, of the formulation of outcomes for phase II of the curriculum as an ongoing process of internal quality assurance. Generalisation may be possible to phase III of the curriculum, given that lecturers working on that phase operate in a similar environment to those who work on phase II. However, most lecturers working on phase III are staff who, over and above their teaching and research responsibilities, also have patient care responsibilities. Thus, there may be additional factors at work for these staff as compared to the staff involved in phase II. Nonetheless, there should be sufficient overlap to make the findings of this case study of use to the further implementation of the curriculum.

The findings might be generalisable to other medical schools that are working with exit and specific outcomes, in that all medical schools operate in the same type of environment, broadly speaking. This would depend very much on how similar the programme design is, however.

Validity and reliability of case studies

Regarding the validity and reliability of case studies, Merriam (1991: 165) quoted Guba and Lincoln:

> *It is difficult to talk about the validity or reliability of an experiment as a whole, but one* can *talk about the validity and reliability of the instrumentation, the appropriateness of the data analysis techniques, the degree of relationship between the conclusions drawn and the data upon which they presumably rest and so on.*

Validity and reliability were primarily considered for the individual techniques that were used, as described in the following section. This was based on the assumption implicit in the quotation above that if the individual techniques were reliable and valid, then so too was the case study. Nonetheless, Merriam (1991) describes six strategies that can be used to ensure internal validity.

Triangulation. This entails the use of multiple investigators, multiple sources of data or multiple methods to confirm the emerging data (Merriam, 1991). There is only one source of data available to determine the congruence of the specific outcomes with the exit outcomes and that is the respective sets of outcomes. The determination of congruence is a subjective judgement, which gives room for error. Using multiple investigators to assess congruence would enhance the validity of the determination of congruence. Given the nature of the specific outcomes, a knowledge of the field of study, i.e., medicine, is required to determine whether congruence exists between the specific and exit outcomes. The process involved in determining congruence between specific and exit outcomes is very extensive, involving 48 320 operations, comparing 1 510 specific outcomes with 32 exit outcomes. An external investigator who is medically qualified, holds the rank of professor in a clinical department and has extensive experience with the design and implementation of this curriculum, was thus asked to assign congruence for a random sample of 1 000 instances and this was compared with the assignment of congruence made by the researcher. The specific and exit outcomes were compared by entering the specific outcomes into a spreadsheet in one column and by entering the exit outcomes into the same spreadsheet in one row as column headings. The random sample was drawn by generating 1 000 random numbers in the range of the row numbers of the specific

outcomes and 1 000 random numbers in the range of the column numbers of the exit outcomes. This was done using Microsoft Excel. These two numbers were used to generate 1 000 cell addresses to be checked by the external investigator. Errors detected during sampling of cells revealed a high error rate for one particular exit outcome. It was apparent that this could have resulted from different interpretations of the meaning of the exit outcome and the external investigator was asked to explain what meaning was attached to this exit outcome.

Member checks. It would have been possible to approach the module teams and ask them whether the interpretation of congruence between specific and exit outcomes is plausible. However, this was beyond the scope of this limited study.

Long-term or repeated observation. This would not have contributed to the validity of the findings in this cross-sectional study, as the set of outcomes has been produced and only one set was studied. It would be possible to transform this study into a longitudinal study of the relationship, but again, this is beyond the scope of this limited study.

Peer examination. It would have been possible to approach colleagues to ask them to comment on the findings of the study. However, this is beyond the scope of this limited study.

Participatory research. It would theoretically be possible to involve participants in all phases of the research. However, given that this is a cross-sectional and not a longitudinal study, this was less likely to have been useful. If the dynamics of the process that influence the formulation of specific outcomes that are congruent with exit outcomes were the only subject of study, then a participatory action research strategy would have been more appropriate than a cross-sectional case study.

3.2.2. RESEARCH TECHNIQUES

3.2.2.1.DOCUMENT ANALYSIS

Documents have been defined as "a*ny written materials that contain information about the phenomena that we wish to study*" (Bailey, 1982: 301). In this instance, the documents were study guides produced for phase II of the revised curriculum that

contain the specific outcomes, i.e., they are primary documents and amenable to document analysis.

Gaining access to the documents

The study guides were readily available in both printed form and as computer files in Microsoft Word format.

Coding and analysing the documents

Bailey (1982: 312) stated that "*the basic goal of content analysis is to take a verbal, nonquantitative document and transform it into quantitative data*". The approach to document analysis was a structured content-analysis approach (Bailey, 1982). The purpose of this exercise in this instance was, as stated by Holsti (quoted by Bailey, 1982: 313) "*to audit communication content against standards*". In this case, the content was the specific outcomes of phase II of the revised medical curriculum and the standards were the exit outcomes for the programme.

Content analysis was undertaken as follows (Bailey, 1982).

Draw the sample of documents. The specific outcomes, as formulated and laid out in the study guide for each module of phase II of the curriculum, were collected from the electronic versions of these documents and transferred to a Microsoft Excel file in one column. The entire population of specific outcomes in the study guides of phase II numbered 1 510. It was thus considered feasible to study the entire population and unnecessary to undertake sampling. Conclusions that were drawn will thus be valid for each of the modules of phase II and for phase II as a whole.

Define the content of categories. Holsti (quoted by Bailey, 1982: 315) stated that categories should be exhaustive, mutually exclusive and independent. The 32 exit outcomes for the revised curriculum meet these criteria and were thus used as categories for analysis. They were added to the Microsoft Excel worksheet in one row, forming column headings for the list of specific outcomes. Each of the specific outcomes was then compared to each of the exit outcomes.

Define the recording unit. The recording unit (or unit of analysis [Bailey, 1982: 317]) in this instance is sentences, i.e., the specific outcomes as laid out in the study

guides. Although using sentences as the unit of analysis has the disadvantage that a sentence may contain more than one topic or theme (Bailey, 1982), the nature of the outcomes is such that they should generally be limited to one topic or theme. Furthermore, the nature of the analysis makes it possible to record whether any particular outcome is congruent with more than one exit outcome, be this due to the presence of multiple topics in a single outcome or due to the nature of the exit outcomes.

Define the system of enumeration. For the purposes of this study, the frequency with which specific outcomes are congruent with exit outcomes was determined. Simply determining whether there are any specific outcomes congruent with any given exit outcome (i.e., a binary "appears or not" approach [Bailey, 1982: 319]) would be relatively uninformative. The frequency with which particular exit outcomes were addressed by specific outcomes would be more informative. No guidelines were found in the literature as to what percentage of specific outcomes should address any given exit outcome, however. It was thus difficult to judge whether the frequency with which any of the other exit outcomes are addressed is appropriate or not. The frequencies observed in this study may go some way toward generating some form of guideline in this regard.

Validity and reliability of document analysis

Validity. Validity is defined by Bless & Higson-Smith (1995: 129) as being "*concerned with just how accurately the observable measures actually represent the concept in question and whether, in fact, they represent something else*". Mouton (1996) specifies the dimensions of validity as theoretical validity, measurement validity, representativeness, reliability and inferential validity. Measurement validity furthermore has as its dimensions face validity, construct validity, criterion and predictive validity (Mouton, 1996). The argument here is primarily concerned with measurement validity and representativeness. The validity of the standards to be used, i.e., the exit outcomes for the programme, as regards national and international practice were not determined. The stance was taken that these have been accepted by the Faculty Board and are therefore in force.

Face (content) validity. There was no doubt as to the authenticity of the documents being studied, as they have been recently produced and are readily available.

Construct validity. There was no difficulty in distinguishing what were formulated as specific outcomes in the documents being studied, i.e., the study guides. No attempt was made to deduce what may have be intended as outcomes from the nature of activities being presented. The intention was to study only what were formally formulated as outcomes.

Representativeness. The documents studied represent the entire population of documents formulated for phase II of the curriculum. All outcomes from all documents were considered. The study is thus representative of the population being studied as no sampling was done.

Reliability. Reliability is defined by Bless & Higson-Smith (1999: 129) as "*the extent to which the observable (or empirical) measures that represent a theoretical concept are accurate and stable when used for the concept in several studies*". This affirms the view taken by Mouton (1996: 144) who quotes the question asked by Smith:

> *Will the same methods used by different researchers and/or at different times produce the same results?*

Instrument reliability. Document analysis offers the advantage that the unit of analysis is nonreactive to the researcher (Bailey, 1982). The purposes for which the study guides were produced provide no source of bias in the documents. The documents being studied were contemporary and were fully available to the researcher.

Analyst reliability. One potential source of error in this study was the subjectivity involved in coding the data, i.e., the assignment of congruence between specific and exit outcomes. This process assumed a certain knowledge or expertise on the part of the investigator about the nature of the outcomes. Another potential source of error was the fact that the comparison of the specific and exit outcomes entailed 48 320 manual operations. The chances for errors during this part of the process were regarded as high due to the tedium of the process. Thus, to check the degree of error in assigning congruence between a specific outcome and an exit outcome, a sample of 1000 cells was taken from the Microsoft Excel spreadsheet. This sample was

generated in the same manner as, but separately to, that generated for checking by an external investigator as described above. The determination of the existence or not of congruence between the specific and the exit outcomes was checked. Errors detected during sampling of cells revealed a high error rate for one particular exit outcome. All of the specific outcomes were again compared with this one outcome and errors rectified.

3.2.2.2.QUESTIONNAIRE SURVEY

Two questionnaires were designed and administered in an attempt to elucidate factors that could influence academic staff in the formulation of specific outcomes that are congruent with exit outcomes. Given that no literature was found on factors that influence lecturers in the formulation of outcomes, this had to be studied indirectly. One questionnaire was thus designed to determine attitudes to teaching and the revised curriculum and to devise potential staff development strategies. The other was designed to determine the extent of stress experienced by staff of an academic department in relation to various aspects of their work, particularly pressure of work. (See below for a discussion on the rationale for questionnaire design).

Both were self-administered, anonymous questionnaires. The decision was taken to use questionnaires rather than interviews for two reasons in particular. Firstly, the numbers involved in the survey on teaching and the curriculum (forty-one potential respondents) were too large for one researcher to interview personally. This was less so for the survey on work-related stress (fifteen potential respondents). However, the material covered in the surveys was such that the extent of involvement of the researcher in the design and implementation of the curriculum revision may have lead to responses considered by respondents as acceptable, rather than their true opinions (De Vaus, 1996). It was considered that responses to an anonymous survey were more likely to be reliable.

Questionnaire design

Questionnaire development was undertaken as follows.

What to ask questions about. The content of the questionnaire on teaching and the revised curriculum was determined by studying relevant literature (Blondell *et al.*,

1993; Bloom, 1989; Finucane *et al.*, 1994; Friedman *et al.*, 1990; Grant & Gale, 1989; Kaufman *et al.*, 1989; Mårtenson, 1989; Mennin & Kaufman, 1989; Pinto Pereira *et al.*, 1993; Saffran, 1991; Schwartz *et al.*, 1994; Tresolini & Shugars, 1994). The content of the questionnaire on work-related stress was also determined by studying relevant literature (Alexander, Monk & Jonas, 1985; Brown *et al.*, 1986; Dey, 1994; Dua, 1994; Gmelch & Wilke, 1988; Gmelch, Wilke & Lovrich, 1986; Neumann & Finaly-Neumann, 1990; Olsen, 1993; Perlberg & Keinan, 1986; Smith, Anderson & Lovrich, 1995; Sorcinelli, 1992; Thorsen, 1996). Unstructured interviews were also conducted with the staff involved. Based on this, the questionnaire on teaching and the revised curriculum was designed to collect demographic information, information on previous training of academic staff for teaching and information on academic staff attitudes towards teaching and the revised curriculum. The questionnaire on work-related stress was designed to collect demographic information and information on various aspects of work-related stress in an academic environment.

The questionnaires were designed to be self-administered, largely for logistical and economic reasons. It was not possible for the researcher to personally contact and administer the questionnaire to all the staff involved. This decision was taken realising that the response to a self-administered survey was likely to be lower than that achieved with direct administration. Given that all staff involved in the surveys have a tertiary education, however, it was decided that respondents would have no difficulty reading the questionnaire or, with careful design, understanding or interpreting the items.

Given that the questionnaires aimed to measure staff attitudes, which are typically complex (De Vaus, 1996), a fairly large number of questions were formulated to capture the scope of the various concepts. This was done with the realisation that limiting the number of questions for a self-administered questionnaire is important.

Indicators were developed based on indicators that have previously been reported in the literature and based on the informal individual interviews conducted with a limited number of staff who would later be involved in the survey (De Vaus, 1996, Rea & Parker, 1992). After initial indicators were developed, these were tested on some of the staff on whom they were to be used. This was a problem, as it potentially introduces bias into the study.

Construction of actual questions. When considering the wording of the questionnaire, it was advantageous that all possible respondents represented a fairly uniform group in terms of both having a tertiary education and a common background as staff in a medical school. It was thus possible to word the questionnaires at a fairly sophisticated level. Nonetheless, care was taken to ensure that wording was straightforward and to the point (Rea & Parker, 1992). No problems were detected with wording during pilot testing of the questionnaires.

Care was taken to avoid ambiguous wording in questions (Rea & Parker, 1992) and to keep questions limited to a single concept (Rea & Parker, 1992). Wording of questions was kept neutral, with care taken to avoid prejudicial language, as well as language that conjures up specifically positive or negative images (Rea & Parker, 1992). Where explanatory information was provided, care was taken to avoid wording the explanatory statements in a way that could not unduly influence the response by providing biasing or manipulative information (Rea & Parker, 1992).

To clarify the layout of the questionnaires, all questions were emphasised with a bold font.

Most questions used in the questionnaires were closed-ended (Rea & Parker, 1992). Questions gathering demographic information were structured as single-response, closed ended questions, providing predetermined response categories. Response categories were selected to ensure that there was no overlap between categories (Rea & Parker, 1992). Responses were arranged vertically, with a box alongside each response. Respondents were asked to place a cross alongside the response of their choice. The number of response categories was selected so as to include all relevant options. With demographic data, the decision was taken to collect some interval data using scales. This was done with data on age and years of experience. Scales were constructed based on an estimate of what would give a relatively even distribution of responses between categories (Rea & Parker, 1992). This was done to prevent respondents having to reveal information that could potentially be used to identify them, i.e., to protect the anonymity of responses. The demographic data collected in the questionnaire on staff stress was also limited for the same reason, given that the number of respondents was small.

Most other questions in the questionnaire on teaching and the revised curriculum were closed-ended, scaled response items. Responses were elicited using a five-point Likert scale. (A few questions required open-ended responses, but these were ignored for the most part by respondents). This type of question was chosen as it works well to elicit attitudinal information (Rea & Parker, 1992). An uneven number of responses was selected to ensure an equal number of positive and negative response possibilities and one middle or neutral category (Rea & Parker, 1992). In all cases, each category of the scale was labelled, as different categories were used for different questions. In some cases, respondents were asked to provide two responses to each item, e.g., a yes/no response and a further response on a five-point scale if the answer to the first part was yes (e.g., Appendix D, question 8).

There were two multiple response items at the end of the questionnaire. Care was taken to indicate to respondents that this was the case.

In all other questions in the questionnaire on work-related stress, respondents were asked to respond to each item on a visual analogue scale with the extremes marked as "did not cause any stress" and "could not have caused more stress" and to indicate the maximum level of stress experienced related to each item in the three months prior to the survey. These responses were subsequently categorised by dividing the scale into three equal divisions that were titled "not much stress", "some stress" and "a great deal of stress". The results reported are those of the subgroup of lecturing staff ($n = 7$), all of whom were involved in implementing phase II of the revised curriculum. All would also have received questionnaires for the survey on teaching and the revised curriculum, although there is no way of ascertaining which respondents reacted to both surveys.

Evaluation of questions. After the initial set of questions had been formulated, each question was evaluated for inclusion in the questionnaire and for formulation. Some questions were considered unnecessary and removed. Some questions were reformulated when found to be double barrelled. None of the questions were considered to be leading. Some questions were set negatively, particularly attitudinal questions. This was done deliberately to reflect attitudes that were expressed in exploratory discussions with respondents.

Designing the layout of the questionnaire. Great care was taken with the instructions on the questionnaires, as they were intended for self-administration. General instructions for the completion were laid out in a covering letter to respondents. This covering letter also gave an indication of how respondents were selected and that the questionnaires were anonymous (Appendix D).

Demographic questions were considered non-threatening and were placed at the beginning of the questionnaires. In the questionnaire on teaching and the revised curriculum, related sets of questions were grouped together in four sections. Each section of the questionnaire was identified with a header that was shaded black with a white font. Instructions for each section were contained in the shaded headers. The layout of the questionnaire on work-related stress was simpler as there were 34 items that respondents had to consider and these were not subdivided.

Respondents were expected to answer all questions on both questionnaires, so that the instructions were fairly straightforward. The questionnaires that were piloted were seven and three pages long and comprised 107 and 37 items respectively. This was considered acceptable for a postal questionnaire (De Vaus, 1996).

Pilot testing

Once the drafts was completed, a small scale pilot test was conducted. Three lecturers who would ultimately be involved in the study, were asked to evaluate each questionnaire for the clarity of instructions, questions and responses. Minor changes were made to the questionnaire based on feedback. The pilot test indicated that the questionnaires could be completed within 15 and 5 minutes respectively, which was considered acceptable (Rea & Parker, 1992).

Questionnaire administration

The questionnaires were administered postally. The questionnaire on teaching and the revised curriculum was administered to all forty-one lecturers involved in implementing the second of three phases of the medical curriculum. This was done shortly before implementation of this phase. The questionnaire on staff stress was sent later to all fifteen teaching and research staff in an academic department.

To try and deal with non-responders, a skip question was used on the bottom of the covering letters. Subjects were given the option of indicating anonymously that they were not prepared or not able to complete the questionnaire by the date requested. It was hoped to be able to distinguish by this means between refusal to take part due to not having time and non-response due to other issues.

Reliability and validity of questionnaires

Reliability. A reliable measurement is one where the same results are obtained on repeated occasions (De Vaus, 1996). There are three aspects to be considered regarding reliability of questionnaires (De Vaus, 1996), i.e., sources of unreliability, testing reliability and increasing reliability.

Bad wording can be a source of unreliability (De Vaus, 1996). With a few minor exceptions picked up during pilot testing, the wording of the questionnaires was considered understandable. Asking questions about which people have no opinion or insufficient information can also lead to unreliable responses (De Vaus, 1996). Regarding the questionnaire on teaching and the revised curriculum, all respondents were involved in the process of curriculum reform and were considered to have sufficient knowledge to express informed opinions on all aspects addressed in the questionnaire. Regarding the questionnaire on work-related stress, all staff work in an academic department. As such, it was not considered necessary to undertake a test-retest strategy (De Vaus, 1996) for either questionnaire to determine how reliable responses to individual questions were. To achieve reliability for some of the constructs that were being tested, multiple items were used (De Vaus, 1996). 'Do not know' or 'neutral' categories were also provided for some responses to avoid forcing respondents to express an opinion that they do not actually hold (De Vaus, 1996).

Validity. A valid measure is one which measures what it is intended to measure (De Vaus, 1996). Validity of items was assessed insofar as possible using available literature.

3.3 DATA ANALYSIS

3.3.1 Document analysis

The data collected with document analysis was categorical insofar as congruence was assigned on a binary scale of present/not present. No attempt was made to assign a degree of congruence. Descriptive statistics were used to describe the data. Given that the process of assigning congruence between specific and exit outcomes was subjective, it was not considered appropriate to use comparative statistics to analyse this data.

3.3.2 Questionnaire survey

The data collected with the questionnaire surveys was of various types. In some instances, e.g., the demographic data, data was categorical and collected on a nominal scale, e.g., gender and group of departments where the respondent worked. In some cases, data was categorical and collected on an ordinal scale, e.g., post description and perception of own teaching ability. For the rest of the questionnaire on teaching and the revised curriculum, the data was continuous but for the most part collected using an ordinal scale. For the rest of the questionnaire on work-related stress, the data was continuous.

Statistical analysis was done using Statistica for Windows (1999, Kernel release 5.5; Statsoft, Inc., Tulsa). Descriptive statistics were used to describe the data. Where appropriate, comparisons of responses based on demographic characteristics (comparison of categorical and continuous data) were made using one way ANOVA, taking $p<0,05$ as significant. Correlations between responses to different items (comparisons of two continuous data sets) were calculated using the Pearson correlation coefficient, with $p<0,05$ considered significant.

The results obtained using this methodology will be described and discussed in Chapter 4.

CHAPTER FOUR:
RESULTS AND DISCUSSION

The results of the document analysis will be presented first. These results will report the degree of congruence observed between specific and exit outcomes. The results of the two questionnaire surveys will be presented subsequently. These results will provide some evidence of factors that may have influenced lecturers in the process of formulating specific outcomes.

4.1. DOCUMENT ANALYSIS

4.1.1. Overview

Thirty-two exit outcomes were formulated for the programme (Appendix C). One thousand five hundred and ten specific outcomes were formulated for the modules of phase II and each was compared for congruence to each of the exit outcomes for the programme. When the process was completed, 1 000 cells were randomly selected and checked. A total of ten errors were identified, for an overall error rate of 1,0% in the sample. This was considered an acceptable error rate overall. However, five of these errors were made for one exit outcome (i.e., outcome 22), for an error rate of 12,8% for that outcome. This was considered unacceptably high and the congruence between all specific outcomes and this exit outcome were reconsidered.

An external investigator was asked to check the determination of congruence of 1 000 randomly selected cells. A total of twelve differences were noted, for an overall error rate of 1,2% in the sample. This was considered an acceptable error rate overall. Eleven of these differences were for one exit outcome (i.e., outcome 1), however, for an error rate of 29,7% for that outcome. On consideration of the specific outcomes where a difference of opinion existed, it appeared that the frame of reference used by the two investigators was different. The researcher took outcome 1 to indicate material that should be covered prior to or during phase I of the revised curriculum. The external investigator apparently took outcome 1 to indicate material that should be covered before phase III of the revised curriculum. This was confirmed by the following interpretation of outcome 1 by the external observer:

> *The first column was in fact the most difficult for me given the way one can view the question. The question that you ask is two-pronged, on the one hand emphasising basic medical concepts and on the other, basic scientific concepts.* (P-L van der Merwe, personal communication, 23 November, 2000).

Thus, where the wording of the outcome is "basic knowledge of necessary medically applicable scientific and mathematical concepts" (Appendix A, emphasis added), it appears that the external observer has interpreted this to mean "basic medical concepts" as well as "basic scientific concepts" and "basic mathematical concepts". The researcher has only interpreted it to mean the latter two.

The process of determining congruence represents one of the greatest potential sources of error in this study, with unreliability posing a threat to validity. With the error checks completed, it was considered that the reliability of this process of coding was acceptable. Nonetheless, the determination of congruence requires an interpretation of the constructs used in the formulation of the outcomes, particularly those used in the exit outcomes. The high error rate for exit outcome 22 was probably related to the nature of the constructs in the outcome, i.e., "integrate", "interpret" and "apply". This determination was made on the basis of the interpretation of the researcher, based on a certain knowledge of the fields of higher education and medicine and experience with the development of this curriculum. However, no attempt was made to formally define the constructs which makes this determination subjective at best. If the various constructs used in the formulation of the exit outcomes were defined in an attempt to increase the objectivity of the process, this would probably have improved the reliability of the coding.

4.1.2. Congruence of specific outcomes with exit outcomes

One thousand four hundred and ninety-five (99,0%) specific outcomes were considered to be congruent with one or more exit outcomes (table 1). There were fifteen specific outcomes (1,0% of the total) that were not assigned congruence with any of the exit outcomes (table 1). The vast majority of specific outcomes are thus relevant to the exit outcomes. If assessment of student achievement in phase II modules is found to be based on these outcomes, then success in assessment can

safely be assumed to indicate development of students towards achievement of the exit outcomes.

Those specific outcomes not considered to be congruent with any exit outcome represent material that should be carefully scrutinised for continued inclusion in the curriculum. If they are considered to represent material that should be included, then the formulation of the exit outcomes should be reconsidered.

Table 1. ***The number and percentage of specific outcomes per module that in the opinion of the researcher did and did not display congruence with any of the exit outcomes.***

MODULE	OUTCOMES ASSIGNED CONGRUENCE		OUTCOMES NOT ASSIGNED CONGRUENCE		TOTAL OUT-COMES
	n	%	n	%	
1	33	89,2	4	10,8	37
2	286	99,3	2	0,7	288
3	93	100,0	0	0,0	93
4	226	100,0	0	0,0	226
5	131	99,2	1	0,8	132
6	150	98,0	3	2,0	149
7	44	97,8	1	2,2	45
8	54	96,4	2	3,6	56
9	118	100,0	0	0,0	118
10	139	100,0	0	0,0	139
11	109	100,0	0	0,0	109
12	84	98,8	1	1,2	85
13	28	96,6	1	3,4	29
TOTAL:	1 495	99,0	15	1,0	1 510

The percentage of specific outcomes from all modules considered congruent with any given exit outcome varied from zero to 68,9% (table 2).

Table 2. ***Number and percentage of specific outcomes (all thirteen modules) that in the opinion of the researcher addressed each of the exit outcomes.***

EXIT OUTCOME NUMBER	SPECIFIC OUTCOMES ADDRESSING THIS EXIT OUTCOME	
	n	%
1	16	1,1
2	1 040	68,9
3	279	18,5
4	37	2,5
5	102	6,8
6	133	8,8
7	10	0,7
8	27	1,8
9	6	0,4
10	12	0,8
11	2	0,1
12	2	0,1
13	0	0,0
14	7	0,5
15	3	0,2
16	0	0,0
17	1	0,1
18	0	0,0
19	0	0,0
20	0	0,0
21	0	0,0
22	328	21,7
23	39	2,6
24	12	0,8
25	0	0,0
26	0	0,0
27	9	0,6
28	7	0,5
29	15	1,0
30	5	0,3
31	2	0,1
32	1	0,1

(NUMBERING OF EXIT OUTCOMES FOLLOWS THAT OF APPENDIX A. NOTE THAT ANY GIVEN SPECIFIC OUTCOME MAY ADDRESS MORE THAN ONE EXIT OUTCOME, SO THAT THE PERCENTAGES FOR THE DIFFERENT OUTCOMES CANNOT BE SUMMED.
N = 1 510)

Three exit outcomes were addressed considerably more frequently than the others. Of these, two addressed only knowledge, i.e., outcomes number 2 (*the recent graduate*

will exhibit ... basic and relevant knowledge of the normal function and morphology of the human body and psyche) (68,9% of all specific outcomes) and 3 (*the recent graduate will exhibit ... relevant knowledge of the abnormal function and morphology of the human body and psyche*) (18,5% of all specific outcomes). The third, i.e., outcome number 22 (*the recent graduate will exhibit ... the ability to integrate, interpret and apply knowledge*) (21,7% of all specific outcomes) addressed integration, interpretation and application of knowledge.

There were eight exit outcomes for which no specific outcomes were formulated in any of the modules (table 2). On consideration of the nature of these exit outcomes (table 3) it could be argued that at least one, i.e., exit outcome 13 is an exit outcome that could effectively be addressed in theoretical modules such as those under consideration here. On the surface of it, not addressing one exit outcome throughout the course of thirteen modules is a good result for a first effort. Phase II as a whole can be seen to contribute to the achievement of most of the exit outcomes that could possibly be addressed. This rather rosy view is somewhat tempered, however, by the fact that apart from exit outcomes 2 and 3, that address lower order cognitive outcomes, almost all of the other exit outcomes that were addressed, were addressed by less than 5% of all specific outcomes (table 2).

Table 3. ***Exit outcomes not addressed by any specific outcomes formulated for modules of phase II of the revised undergraduate medical curriculum.***

OUTCOME NO	TEXT OF OUTCOME
13	Knowledge of the basic principles of research methodology.
16	An acknowledgement of the limitations of own knowledge and skills.
18	A willingness for involvement and service within the broad community.
19	An empathetic disposition towards the patient, their family, as well as the community and a willingness for accessibility.
20	The acceptance of his/her full responsibility within the patient/doctor relationship.
21	The willingness to set a positive example regarding social responsibilities and obligations.
25	Sufficient skills in diagnostic and therapeutic procedures to be able to function autonomously as a doctor in primary care.
26	The ability to function holistically within the context of family and community.

The question could be posed: What percentage of specific outcomes should address any given exit outcome in a theoretical module? Is it not sufficient that, say for argument's sake, only two out of two hundred specific outcomes address the ability of students to effectively utilise computers (c.f. exit outcome 32)? Given that the modules of phase II are all theoretical modules and that they are designed to lay the groundwork for phase III, it is to be expected that these modules would address knowledge outcomes more than other outcomes. One might expect lower order cognitive outcomes to feature particularly prominently at the beginning of phase II and for other outcomes to feature more prominently as the curriculum progresses. For example, it could be argued that higher order cognitive outcomes like exit outcomes 22, 23 and 28 and skills outcomes like exit outcomes 30 and 32, should figure quite prominently in modules towards the end of phase II. An examination of figures 1 to 5 reveals that this is not the case, however. There is clearly no progression in the percentage of outcomes devoted to these higher order outcomes with progression through phase II of the revised curriculum.

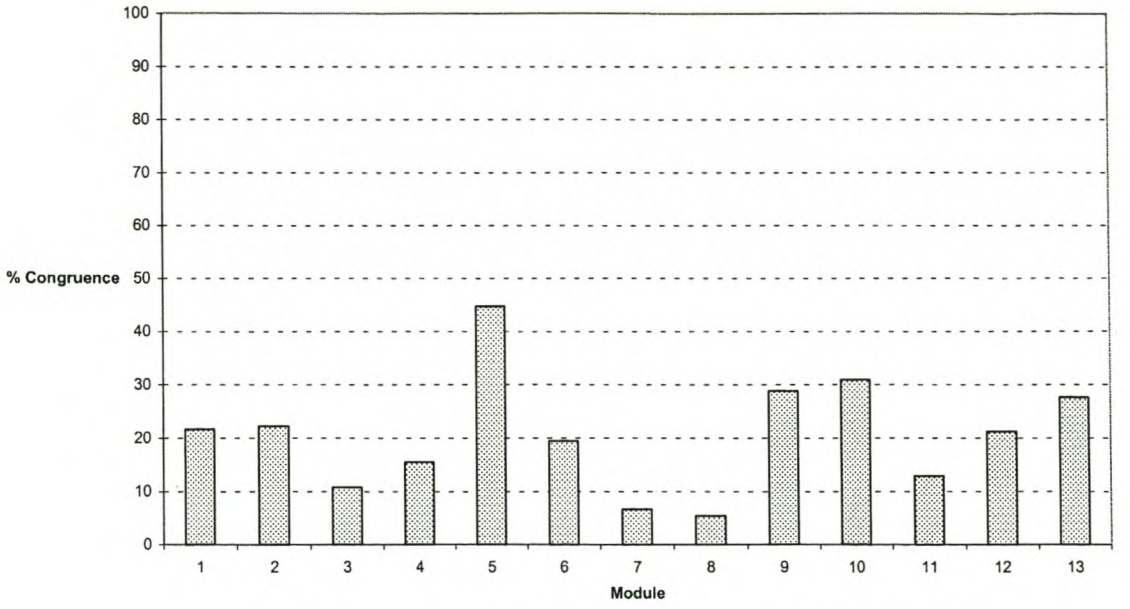

Figure 1. ***Percentage of specific outcomes in each module that in the opinion of the researcher addressed exit outcome number 22 (the ability integrate, interpret and apply knowledge).***

N = 328

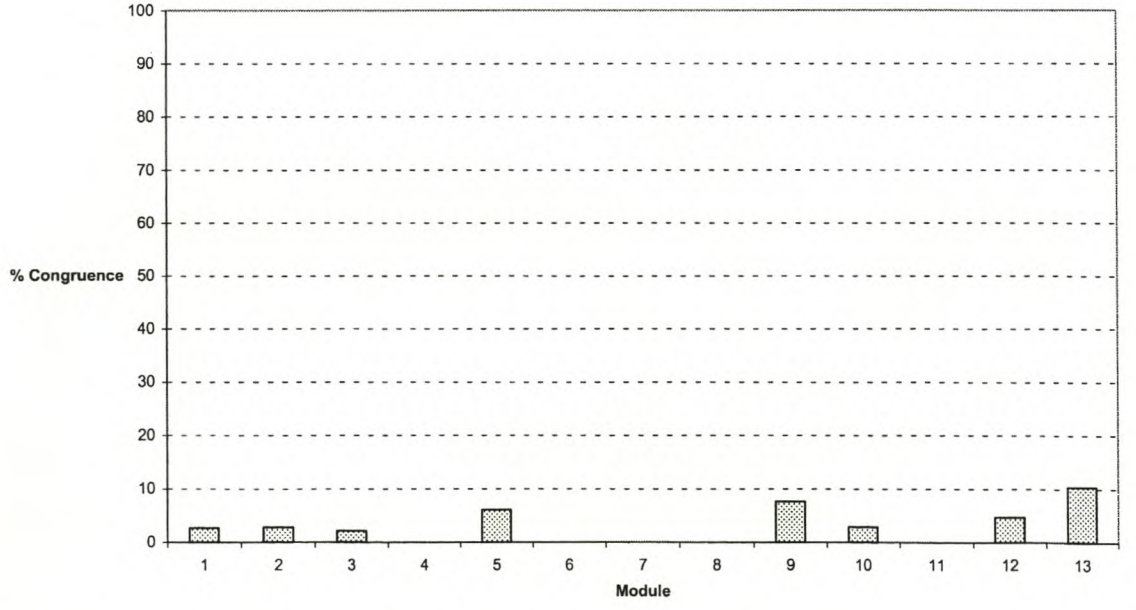

Figure 2. ***Percentage of specific outcomes in each module that in the opinion of the researcher addressed exit outcome number 23 (the ability to think and act in a problem solving fashion).***

N = 39

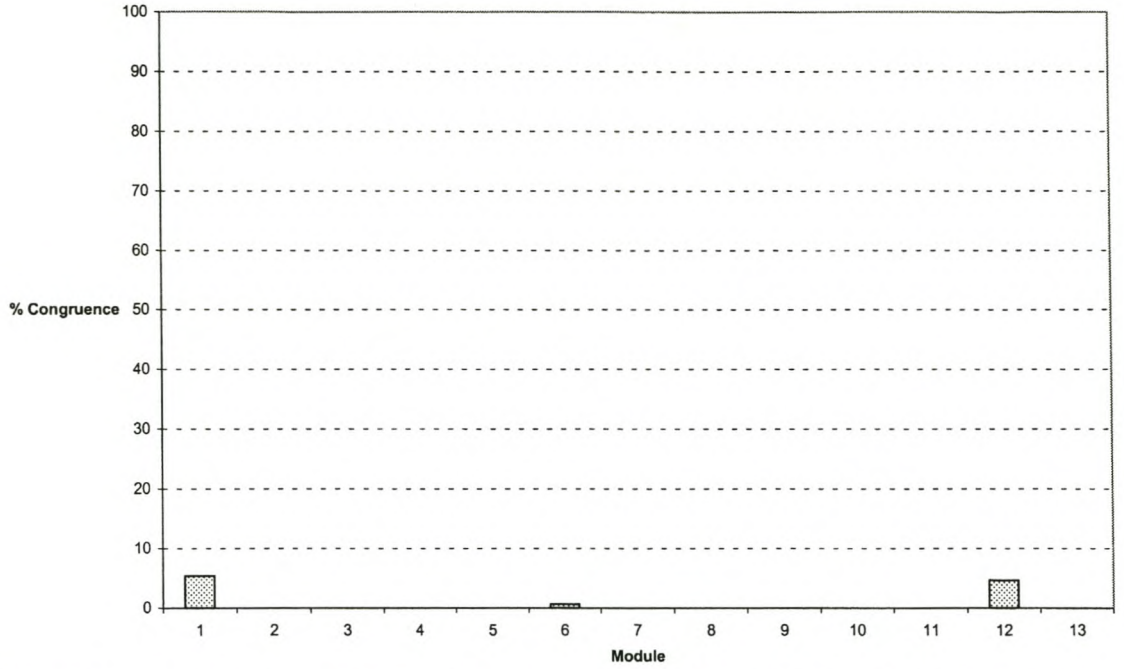

Figure 3. ***Percentage of specific outcomes in each module that in the opinion of the researcher addressed exit outcome number 28 (the ability to interpret and apply relevant literature).***

N = 7

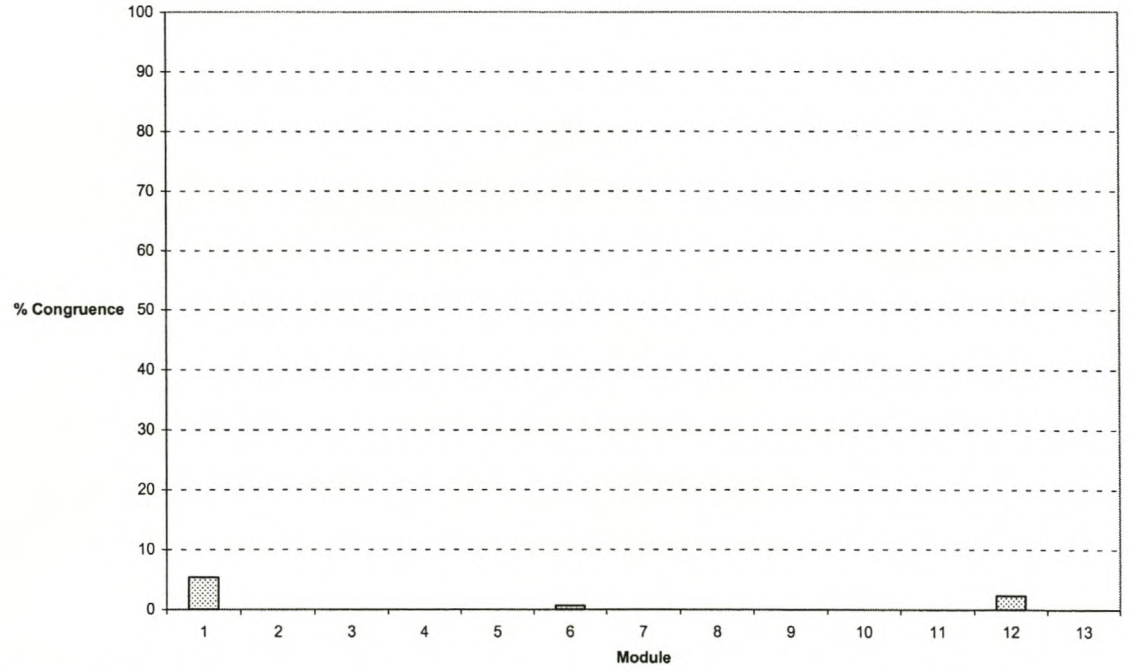

Figure 4. ***Percentage of specific outcomes in each module that in the opinion of the researcher addressed exit outcome number 30 (the ability to function in the broad team context).***

N = 5

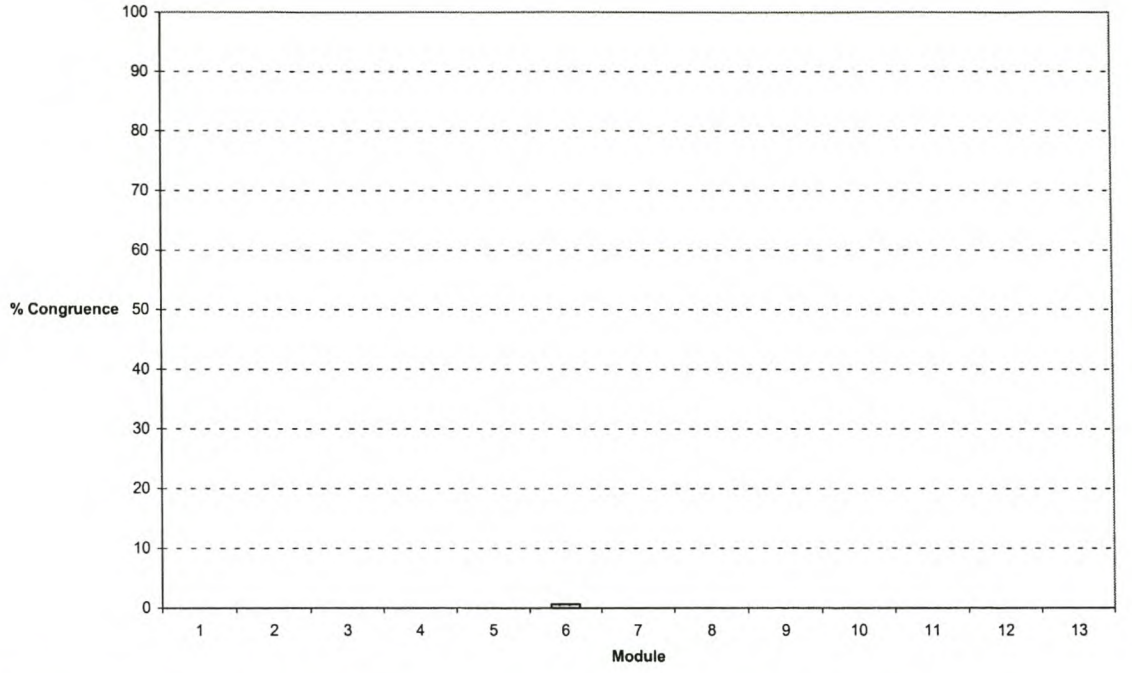

Figure 5. ***Percentage of specific outcomes in each module that in the opinion of the researcher addressed exit outcome number 32 (the ability to effectively utilise relevant technological resources, e.g., computers).*** *N = 1*

This picture becomes gloomier if one considers the picture presented by each module (table 4; figures 6 – 18). The number of exit outcomes addressed per module varied from 2 to 21. Six modules address five or less exit outcomes, of which two address only two exit outcomes. It is notable that the two modules (1 and 13) with the lowest numbers of specific outcomes (due to the fact that they were among the shortest modules) addressed the greatest number of exit outcomes. One of these two modules is an introductory module designed to familiarise students with the teaching methods that they can expect in the rest of the curriculum. The second of these is a social sciences, rather than a natural sciences, module, addressing behavioural science and ethics. It is also evident that there is no tendency to address a wider spectrum of exit outcomes in later than in earlier modules.

Table 4. ***Number of exit outcomes that in the opinion of the researcher were addressed by specific outcomes in each of the theoretical modules.***

MODULE	TOTAL NUMBER OF SPECIFIC OUTCOMES	NUMBER OF EXIT OUTCOMES ADDRESSED
1	37	21
2	288	5
3	93	5
4	226	9
5	132	5
6	153	6
7	45	2
8	56	2
9	118	6
10	139	6
11	109	3
12	85	7
13	29	14
	AVERAGE:	6,7

SEE ALSO FIGURES 6 - 18.

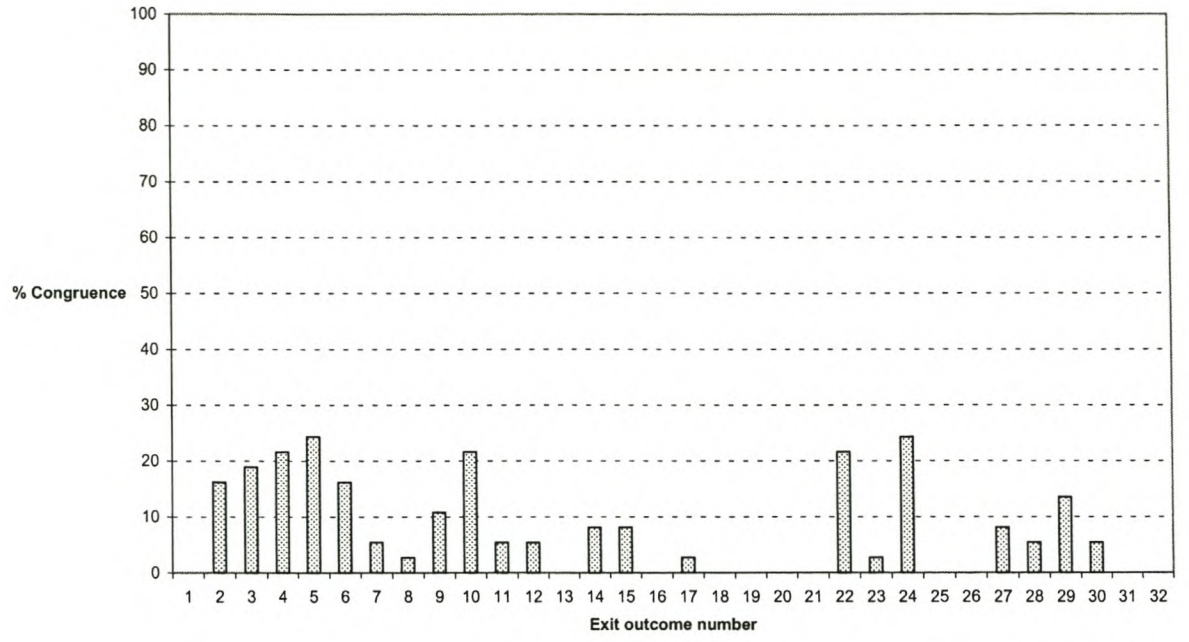

Figure 6. ***Percentage congruence between the specific outcomes of Module 1 and each of the exit outcomes.***

N = 37

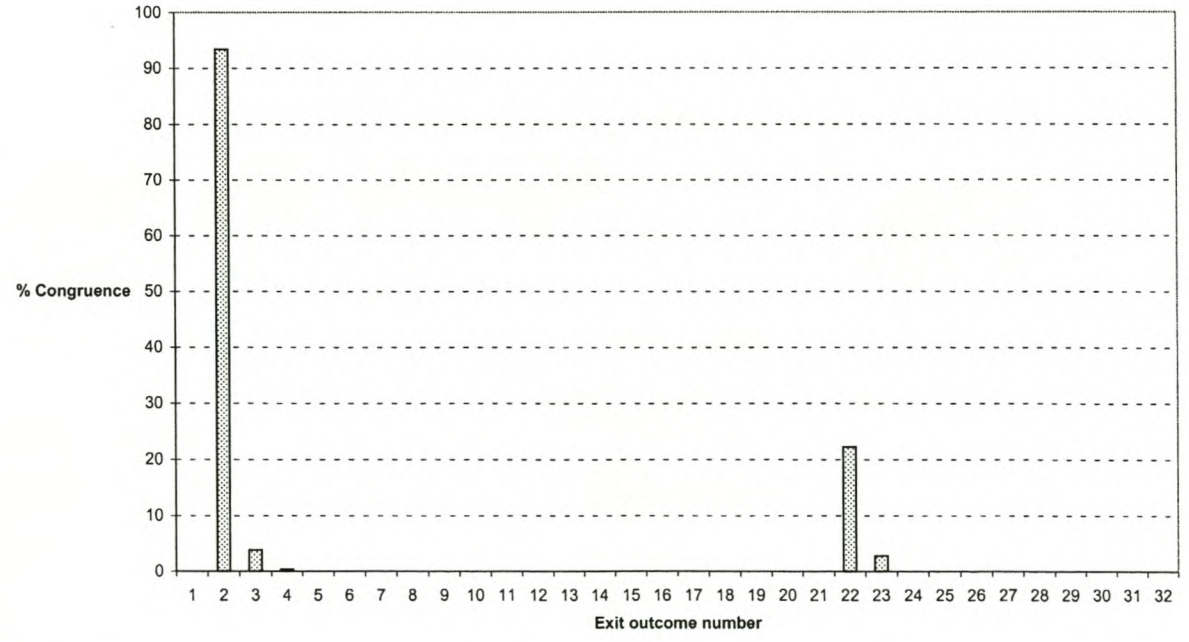

Figure 7. ***Percentage congruence between the specific outcomes of Module 2 and each of the exit outcomes.***

N = 288

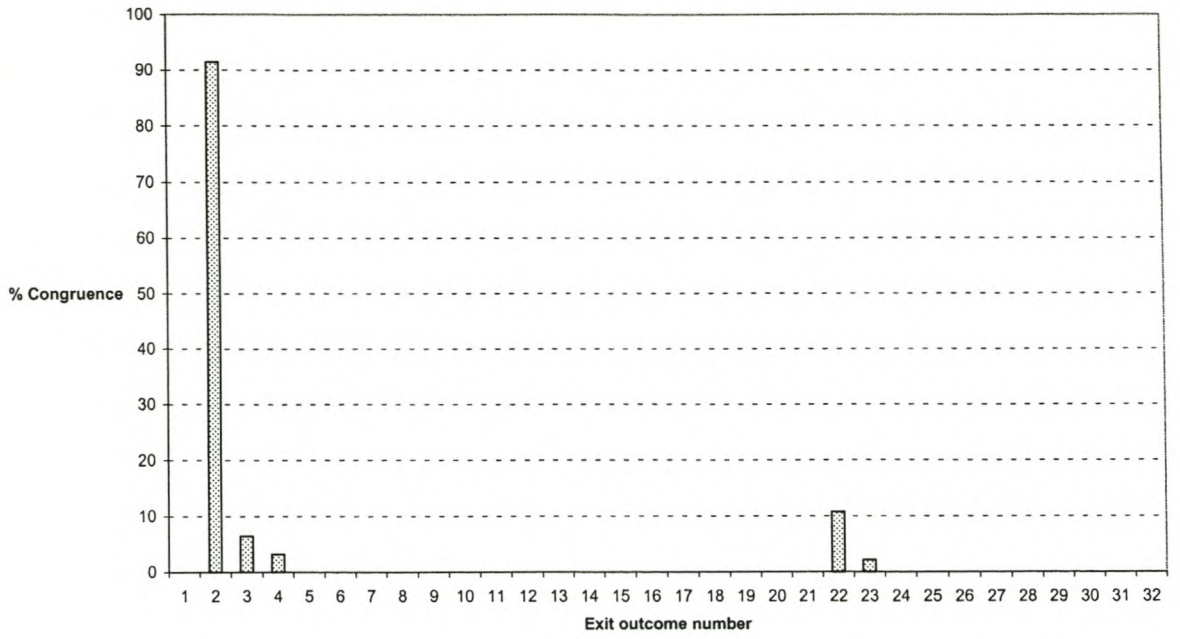

Figure 8. ***Percentage congruence between the specific outcomes of Module 3 and each of the exit outcomes.***

N = 93

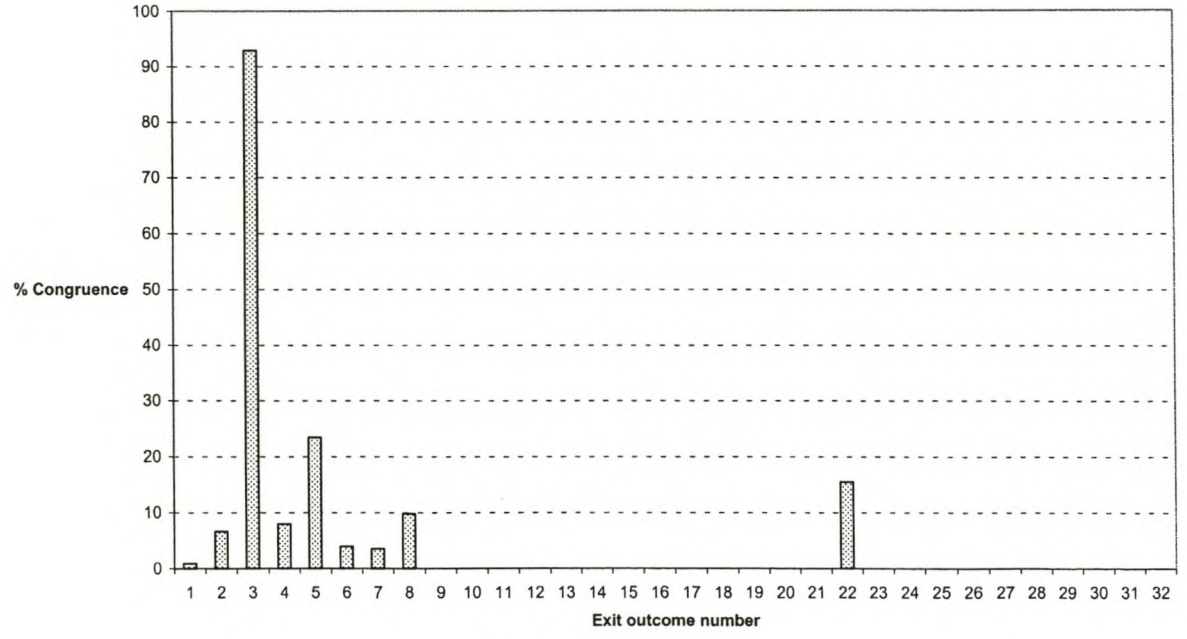

Figure 9. ***Percentage congruence between the specific outcomes of Module 4 and each of the exit outcomes.***

N = 226

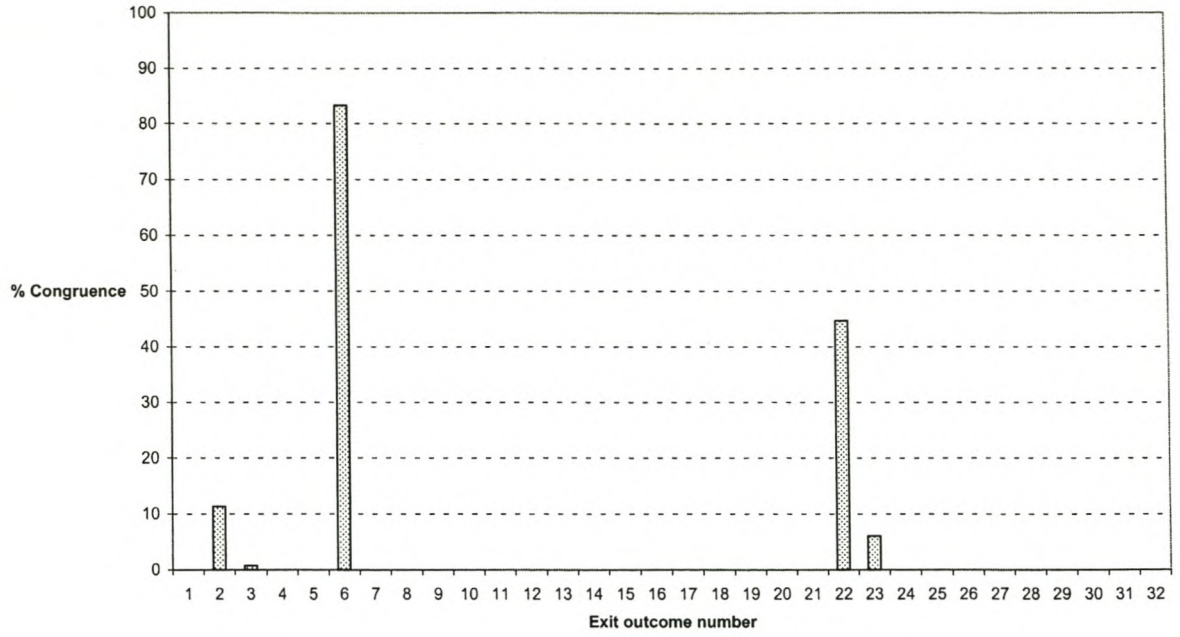

Figure 10. ***Percentage congruence between the specific outcomes of Module 5 and each of the exit outcomes.***

N = 132

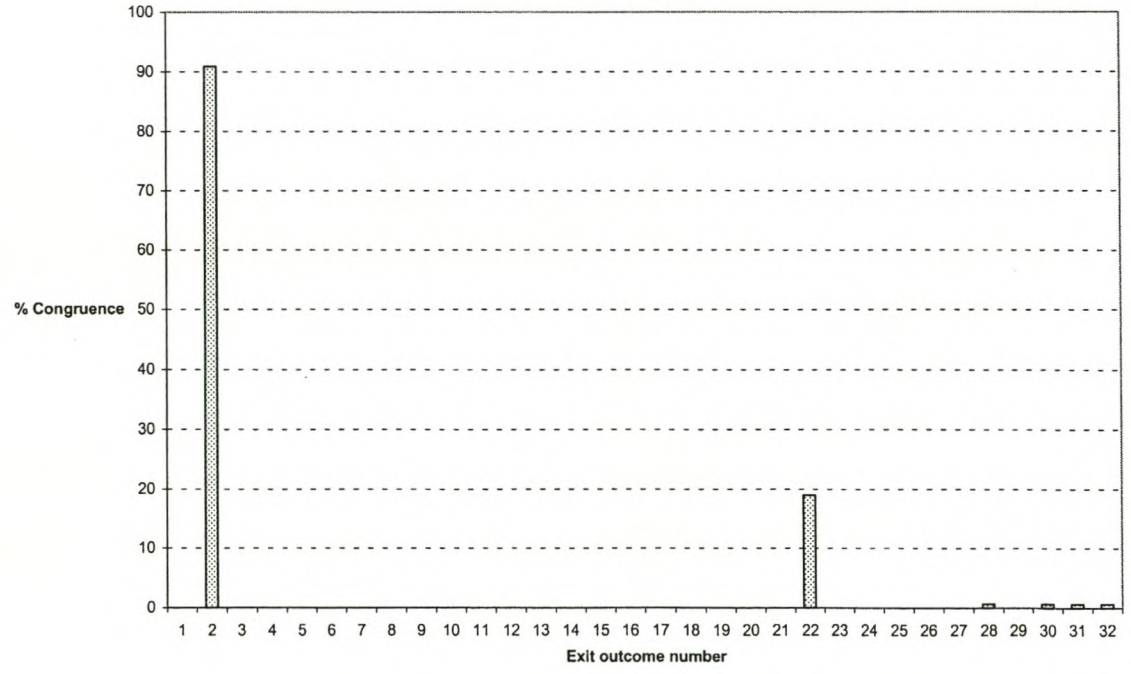

Figure 11. ***Percentage congruence between the specific outcomes of Module 6 and each of the exit outcomes.***

N = 153

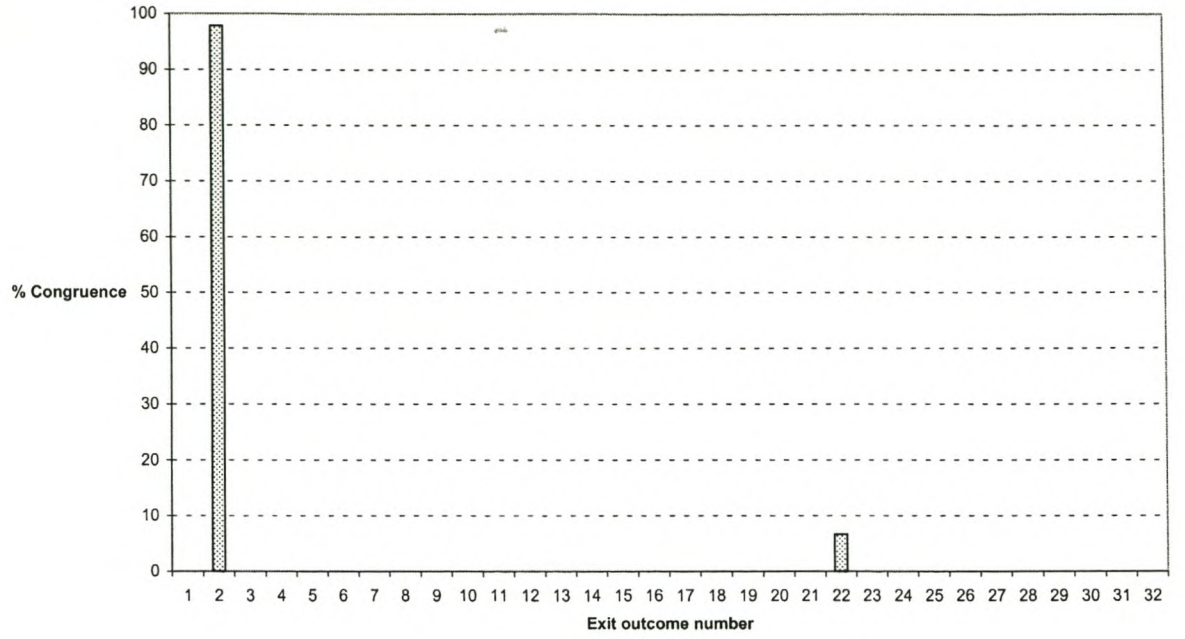

Figure 12. ***Percentage congruence between the specific outcomes of Module 7 and each of the exit outcomes.***

N = 45

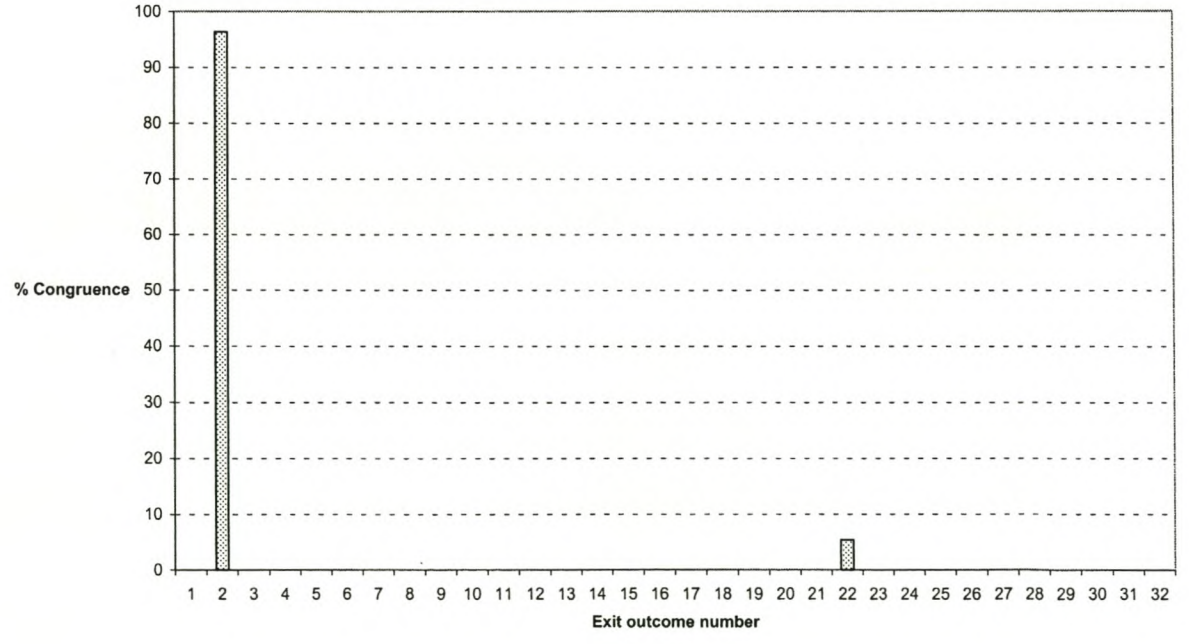

Figure 13. ***Percentage congruence between the specific outcomes of Module 8 and each of the exit outcomes.***

N = 56

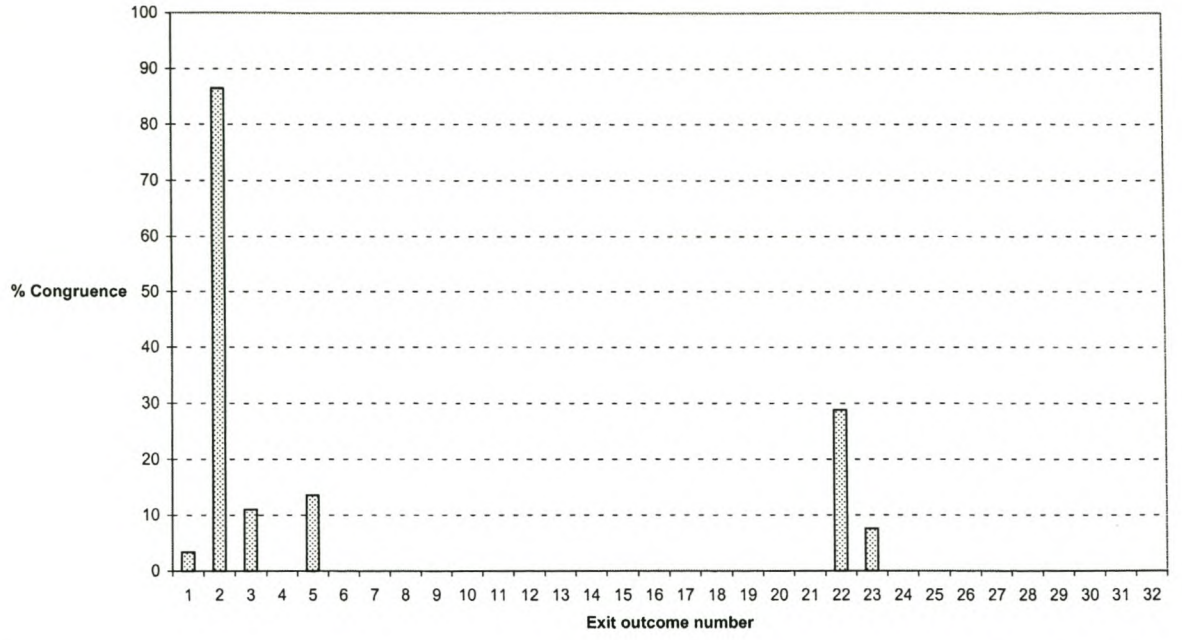

Figure 14. ***Percentage congruence between the specific outcomes of Module 9 and each of the exit outcomes.***

N = 118

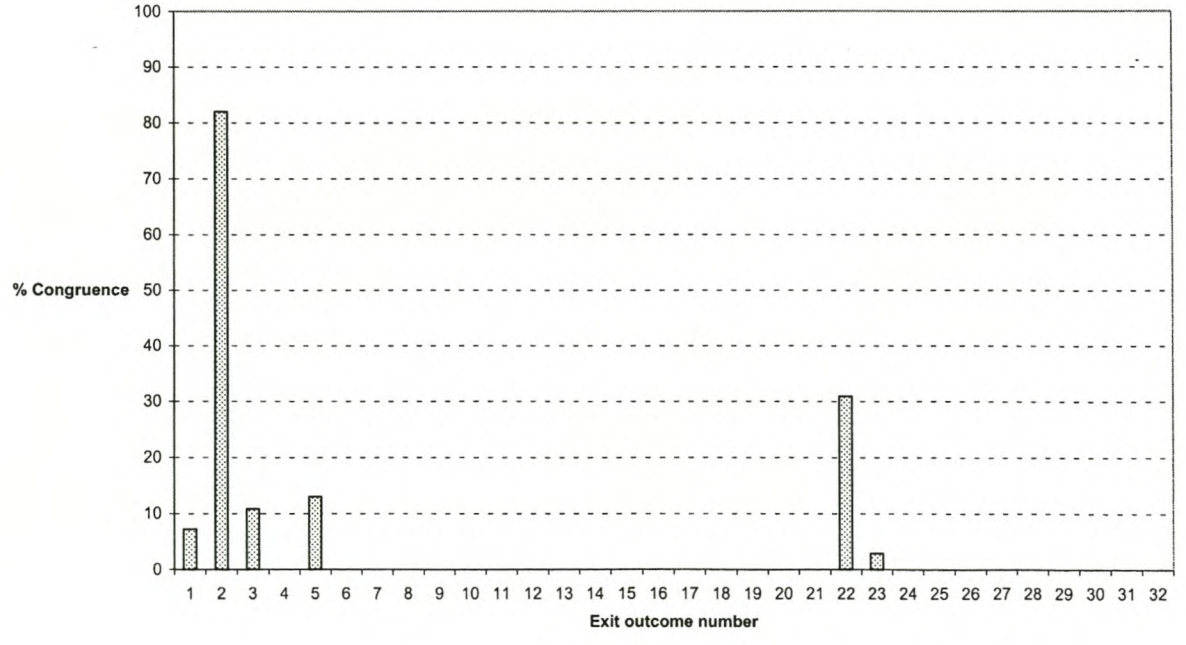

Figure 15. ***Percentage congruence between the specific outcomes of Module 10 and each of the exit outcomes.***

N = 37

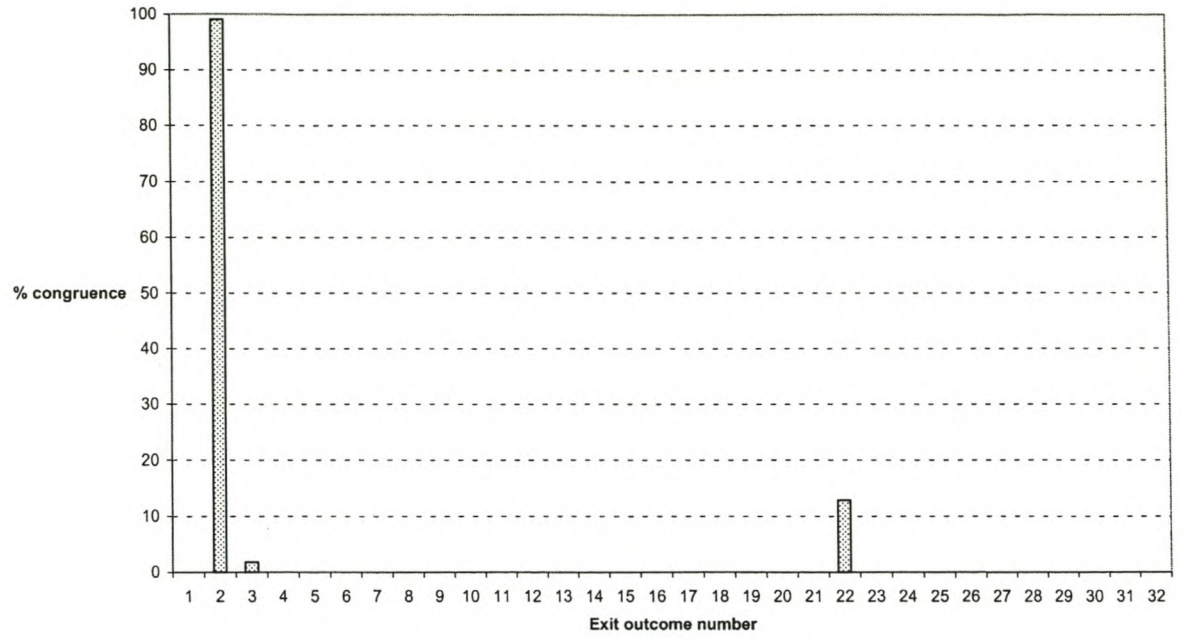

Figure 16. ***Percentage congruence between the specific outcomes of Module 11 and each of the exit outcomes.***

N = 109

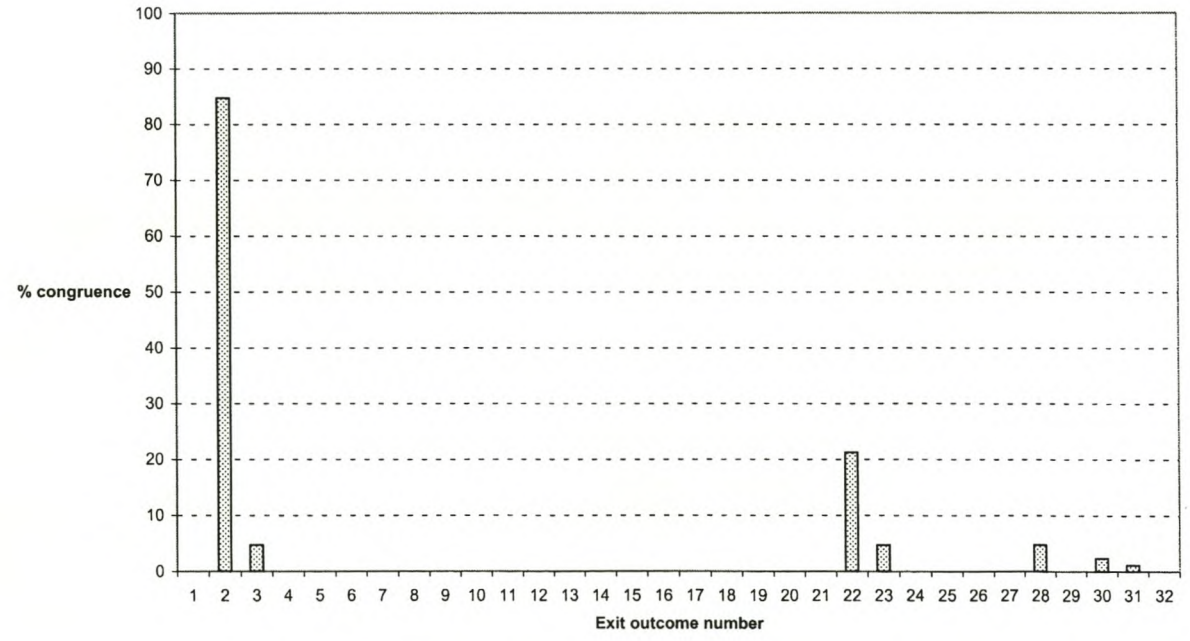

Figure 17. ***Percentage congruence between the specific outcomes of Module 12 and each of the exit outcomes.***

N = 85

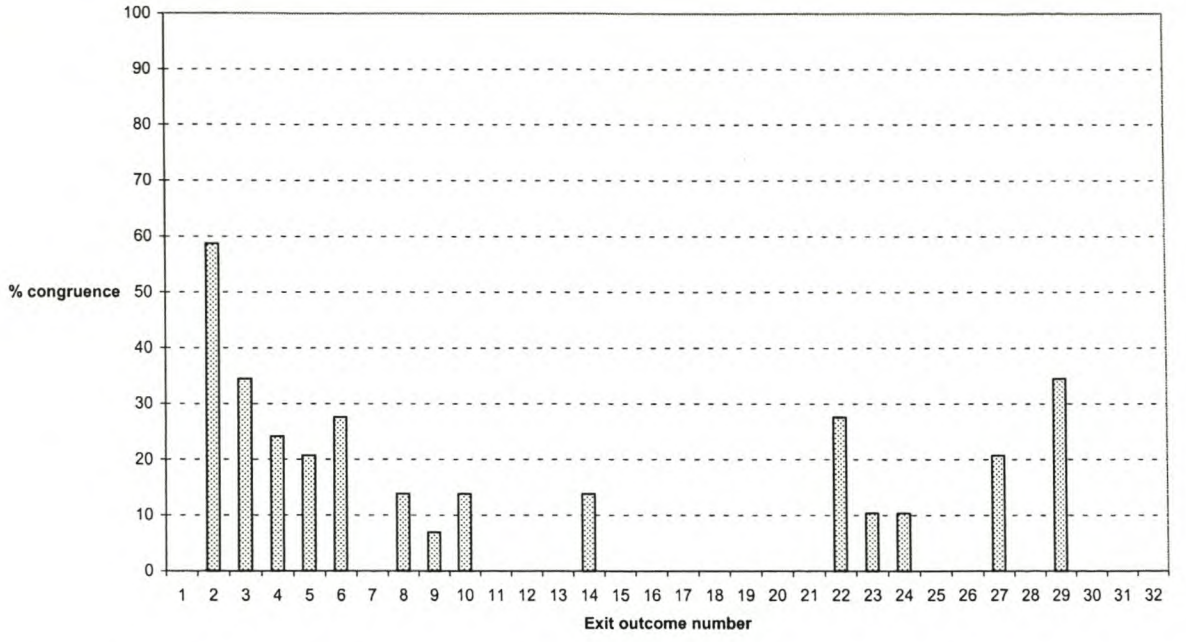

Figure 18. ***Percentage congruence between the specific outcomes of Module 13 and each of the exit outcomes.***

N = 29

There are a number of possible explanations for the pattern described above. One is that lecturers addressed elements of the exit outcomes in the teaching-learning activities that they designed, but that they did not formulate written specific outcomes for them. Some evidence for this scenario can be presented by the researcher, who has to an extent played the role of participant observer by virtue of being involved as co-designer and co-teacher of Module 6. This module only addressed six specific outcomes of which four were addressed only once each (figure 11). An examination of the study guide for this module (not shown) reveals activities the design of which addresses outcomes like exit outcomes 17, 23 and 24, over and above the exit outcomes indicated in figure 11.

This at once lends credence to the theory that lecturers are addressing the outcomes in activities but not in written outcomes, but also highlights what could be considered a weakness of this study. This study has concentrated solely on the outcomes explicitly formulated in writing for each module. No attempt was made to deduce what outcomes were implicit in the design of activities. The picture presented here may

thus not fully represent the outcomes that could have been achieved by students in phase II. However, the written outcomes have been the focus of the study as it is these on which students are likely to concentrate until such time as there is a history of assessment in the revised curriculum. If the stated outcomes are not tightly linked to assessment, then the most important curriculum from students' point of view will again be the "hidden curriculum" referred to earlier, making the outcomes redundant. Ideally, the stated and assessed curricula should be the same. Based on the picture presented here, success in assessment of student achievement, where such assessment is in line with these specific outcomes, will indicate development of students towards achievement of the exit outcomes. If assessment is based on stated outcomes, however, it is likely that this will only indicate development of students towards a limited range of exit outcomes. This is because most exit outcomes are addressed only in passing in most modules and are therefore unlikely to figure prominently in assessment. It is thus likely that congruence of assessment with the outcomes, as they stand at present, will not indicate development of students towards the achievement of all possible exit outcomes.

A question that arises is to what extent certain outcomes, e.g., higher order cognitive outcomes, should be addressed to ensure that they are achieved. It is not possible to make any guiding statement in this regard at this stage and no guidance was found in the literature. It may be possible to make some recommendations based on experience after each phase has been implemented several times. Then, an evaluation can be made of the relationship between the extent to which any given exit outcome is addressed by specific outcomes, the extent to which the outcome is assessed and, ultimately, the achievement of that outcome by students.

Another explanation for the observed pattern is that lecturers neither formulated specific outcomes nor addressed elements of the respective exit outcomes in teaching-learning activities. This study has produced no evidence to support or refute this assertion. If this is the case, however, there are a number possible explanations. One is that the approach that had existed in the medical school previously and to which lecturers are probably accustomed, laid a strong emphasis on lectures. If lecturers were to become more accustomed to the idea that outcomes other than (particularly) lower order cognitive outcomes are worth pursuing, they may be more likely to

formulate such outcomes. It may be that lecturers are not familiar with the teaching-learning strategies required to help students to achieve these outcomes and therefore do not formulate outcomes they do not know how to achieve. It may be that lecturers believe the outcomes are worth pursuing, but that they are resistant to the idea of the *Profile of the Stellenbosch Doctor*, to teaching or to change and therefore do not formulate appropriate outcomes. These attitudes were addressed in the next section which considers lecturer responses to a survey on, amongst other things, attitudes towards teaching and the revised undergraduate medical curriculum. Whatever the cause of the pattern, it is clear that staff development and other initiatives to manage change have not shifted the focus of teaching staff strongly enough to also encompass the formulation of other outcomes. It can be argued that this could translate into students not achieving the exit outcomes.

4.2. QUESTIONNAIRE SURVEYS

The results of the two surveys will be presented together as elements of both will be used to discuss various points. The two will only be considered separately in the section on "Response rates and representivity".

4.2.1. Response rates and representivity

4.2.1.1. Survey on attitudes towards teaching and the revised curriculum

Twenty-seven lecturers (66%) responded to the survey on attitudes towards teaching and the revised curriculum by the indicated return date. A follow-up letter a week after the indicated return date, with a view to increasing the response rate to above 70% (Babbie, 1990; Krathwohl, 1993), did not elicit any additional responses. The demographic information on one questionnaire was not completed, so it was excluded from analysis. Data analysed thus represents the opinions of 26 respondents (63% of the population surveyed).

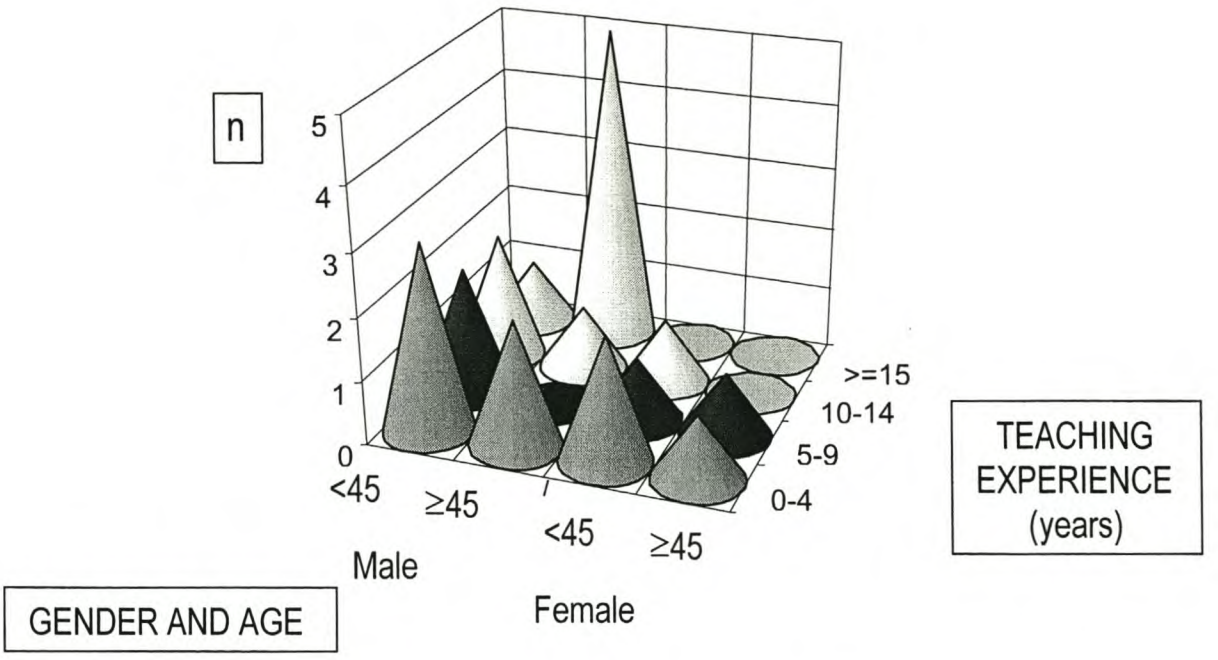

Figure 19. ***Gender, age and teaching experience of academic staff.***

N = 26. The sample is broadly representative of the group studied.

The reasons for a lack of response are important, as non-respondents may differ in significant ways from respondents (Babbie, 1990; Denscombe, 1998; De Vaus, 1996; Krathwohl, 1993). It is considered unlikely that non-response stemmed from non-contact (Denscombe, 1998) as the addresses and presence of all recipients was confirmed prior to mailing questionnaires. It could be argued that lecturers who were positive towards their teaching and therefore interested in the subject of the survey, i.e., teaching and the revised curriculum, would be more likely than those with a negative attitude to respond to a survey about teaching. Non-response may thus be due to attitudes, which could create bias that would have significant effects on a survey to determine attitudes.

No respondents returned questionnaires by or after the indicated return date indicating by means of the skip question that they were unwilling or unable to answer the questionnaire. It is, therefore, not possible to determine whether lecturers did not respond because they did not, for example, have time or because they refused for some other reason to respond to the survey, e.g., because they hold a negative attitude towards teaching.

Table 5. *Gender and years of work experience of respondents.*

	GENDER		
Experience (years)	**Female**	**Male**	**Total:**
0 – 4	3	6	9
5 – 9	4	1	5
10 – 14	1	3	4
≥15	0	8	8
Total:	8	18	26

N = 26

There were no differences in gender representation amongst respondents when analysed by post level or age group, but there were significantly fewer women than men with 10 years or more teaching experience (Fisher exact p = 0,03) (table 5). Casual observation suggests that this imbalance exists amongst teaching staff in the faculty as a whole but no data are available to confirm this. It is, thus, not possible to say that the results of this survey can be generalised to other teaching staff in the Medical School, where differences exist in responses between respondents who differed in gender or in years of work experience. The respondents were otherwise representative of the population surveyed as regards gender and age and as such, the response rate was considered sufficient for conclusions to be drawn that are representative of the population surveyed (Babbie, 1990; Krathwohl, 1993).

4.2.1.2. Survey on work-related stress

Twelve academic staff (80%) responded to the survey on work-related stress by the indicated return date. No follow-up of non-responders was undertaken due to the high response rate. One respondent indicated that they chose not to complete the questionnaire and one respondent completed only some items. These questionnaires were excluded from analysis. Results reported from this survey will report only on the responses of teaching staff. As a whole, data analysed represents the opinions of 67% of the population surveyed. Respondents were representative of the population surveyed as regards gender and teaching responsibilities. As a sub-group, seven out of a possible nine (78%) teaching staff responded to the survey. These response rates are

considered sufficient for conclusions to be drawn that are representative of the population and sub-groups (teaching and non-teaching academic staff) surveyed.

4.2.2. Survey results and discussion

4.2.2.1. Lack of time

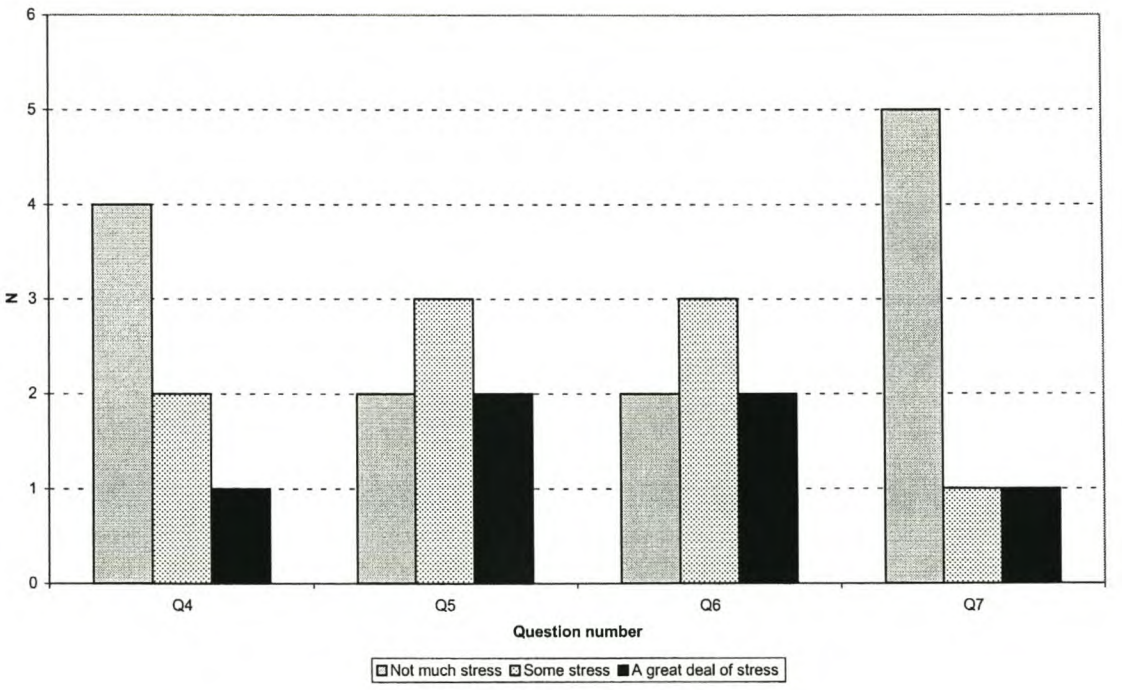

Figure 20. ***The maximum degree of stress experienced by lecturing staff in the three months prior to the survey.***

N = 7

Q4 *Insufficient time during a normal working day to complete the work that you must do*
Q5 *Insufficient time during a normal working day to complete the work that you would like to do*
Q6 *Too many different tasks to which you must give attention*
Q7 *A lack of time to do the work that you must do properly*

Perhaps the simplest explanation as to why lecturers did not ensure a greater degree of congruence between specific and exit outcomes is that they simply did not have time to do so (Mennin and Kaufman, 1989). Some support for this contention comes from the survey done to determine work-related stress levels amongst staff. Three of seven respondents indicated that "*insufficient time during a normal working day to complete the work that you must do*" caused them "some" or "a great deal" of stress (figure 20).

Five of seven respondents indicated that both "*insufficient time during a normal working day to complete the work that you would like to do*" and having "*too many different tasks to which you must give attention*" caused them "some" or "a great deal" of stress. However, "*a lack of time to do the work that you must do properly*" was not a major cause of stress.

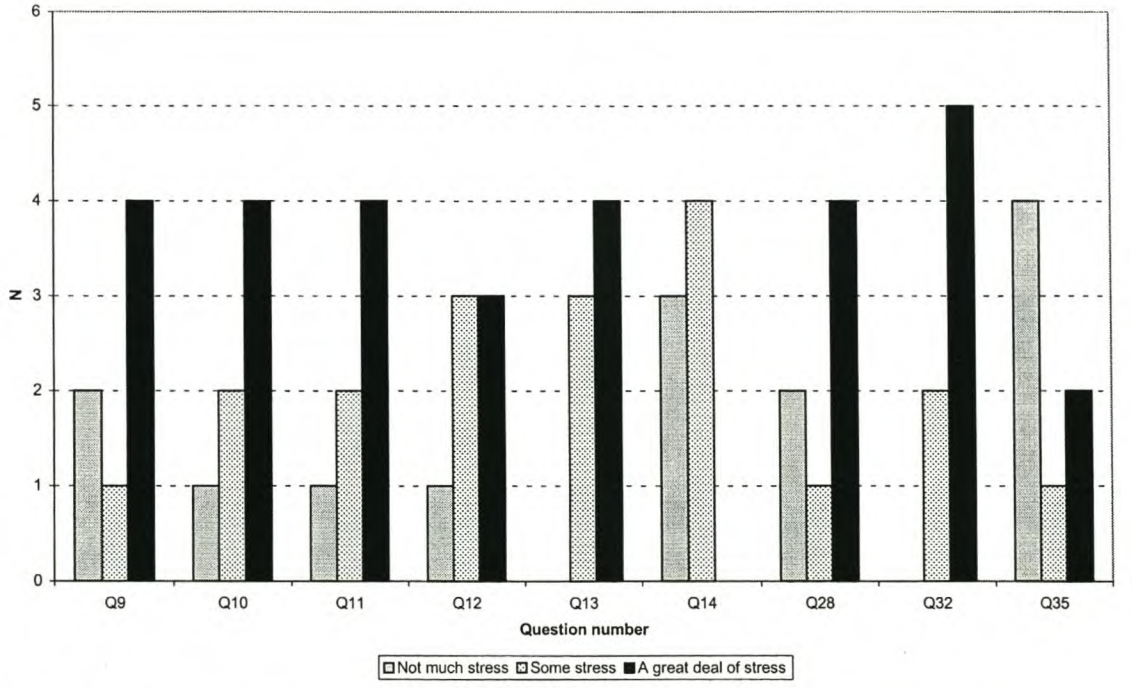

Figure 21. ***The maximum degree of stress experienced by lecturing staff from research-related aspects of their work in the three months prior to the survey.***

N = 7

Q9 *To try and balance the demands of research and teaching commitments*
Q10 *A lack of time to prepare manuscripts for publication*
Q11 *The procurement of sufficient funds for research*
Q12 *A lack of time to do research*
Q13 *A lack of time to stay current with the latest developments in your field*
Q14 *Insufficient facilities for research*
Q28 *Lack of clarity about criteria by which your research is evaluated during performance appraisal*
Q32 *Research that is not as good as you would like it to be*
Q35 *Unrealistic expectations from others regarding your research*

Five of seven respondents indicated that "*to try and balance the demands of research and teaching commitments*" caused them "some" or "a great deal" of stress (figure 21). Six of seven respondents identified "*a lack of time to do research*" as causing them "some" or "a great deal" of stress. The major sources of stress identified

by respondents were "*a lack of time to stay current with the latest developments in your field*" and "*research that is not as good as you would like it to be*", with all respondents identifying both as a source of "some" or "a great deal" of stress. Responses to the items about lack of time to do research and research that is not as good as you would like it to be were highly and significantly correlated (Pearson $r = 0,79$; $p<0,05$).

Six of seven respondents indicated that both "*a lack of time to prepare manuscripts for publication*" and "*the procurement of sufficient funds for research*" caused them "some" or "a great deal" of stress. Responses to these last two items were highly and significantly correlated (Pearson $r = 0,90$; $p<0,05$).

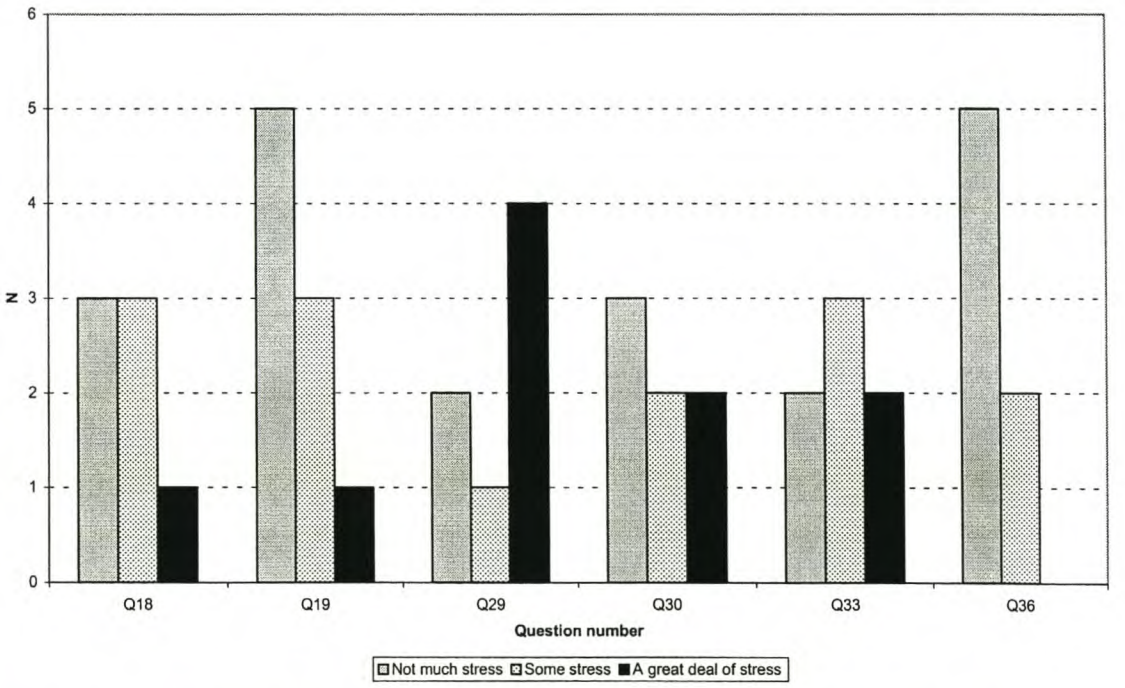

Figure 22. ***The maximum degree of stress experienced by lecturing staff from teaching-related aspects of their work in the three months prior to the survey.***

N = 7

Q18 *Teaching students*
Q19 *Insufficient time to prepare for teaching*
Q29 *Lack of clarity about criteria by which your teaching is evaluated during performance appraisal*
Q30 *Evaluation of your teaching by students*
Q33 *Teaching that is not as good as you would like it to be*
Q36 *Unrealistic expectations from others regarding your teaching*

Teaching does not appear to be a major source of stress for respondents (figure 22). The aspect of teaching that caused respondents most stress in the three months prior to the survey was "*lack of clarity about criteria by which your teaching is evaluated during performance appraisal*", with five of seven respondents indicating that this caused "a great deal" of stress.

It thus appears that respondents are relatively unstressed about time and their teaching task and considerably more so about time and their research task. This may be because they give more time to their teaching than their research and are thus not stressed about the former. The results in table 6 suggest that this may be the case. On average, respondents estimated that they spent 40% of their time on undergraduate or postgraduate teaching. There were no significant differences when analysed by post level.

Table 6. ***Average proportion of time that academic staff of different post levels estimate they spend on different aspects of work.***

		AREA OF WORK			
		Under-graduate teaching	**Post-graduate teaching**	**Research**	**Admin-istration**
POST	**n**	**%**	**%**	**%**	**%**
Professor	6	19,2	16,7	16,7	22,5
Senior lecturer	10	31,0	19,2	14,5	25,0
Lecturer/ Consultant	5	22,0	14,0	19,0	6,0
Lecturer/ Registrar	4	23,8	7,5	27,5	4,0
Other	1	20,0	5,0	50,0	25,0
Weighted average:		**25,0**	**15,3**	**19,2**	**17,5**

N = 26. TIME SPENT ON CLINICAL WORK NOT SHOWN AS NOT ALL ACADEMIC STAFF PERFORM CLINICAL DUTIES.

Nonetheless, 65% of respondents indicated that they would like to spend more time on their educational activities than they do at present (table 7).

Table 7. *Attitudes of respondents towards teaching.*

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
If I had the time, I would like to spend more time on my educational activities than is the case at present.	65,4	19,2	15,4
I would like to have inputs on education on an ongoing basis.	69,2	11,5	19,2
A lecturer's teaching skills can be improved by training.	84,6	11,5	3,8
I would find it useful to attend training activities on teaching.	72,0	20,0	8,0

N = 26.

Significantly more respondents holding an appointment as senior lecturer agreed with this item than those holding an appointment as lecturer/consultant (p = 0,04) or as lecturer (both consultant and registrar) (p=0,02) (table 8).

Table 8. *Responses of academic staff of different post levels to the item* **"If I had more time, I would like to spend more time on my educational activities than is presently the case".**

	ATTITUDE		
POST	**Agree n**	**Neutral n**	**Disagree n**
Professor	5	1	0
Senior lecturer/Consultant	8	2	0
Lecturer/Consultant	2	0	3
Lecturer/Registrar	1	2	1
Other	1	0	0

N = 26.

It could be argued that this is because senior lecturers are under pressure to perform other kinds of duties including research and administration. However, the same argument could be made for respondents holding the rank of professor, for whom no such differences were evident. There were no differences in the amount of time respondents estimated that they spent on teaching as opposed to other responsibilities when analysed by post level. It is thus unlikely that the wish of senior lecturers to

spend more time on their teaching is related to their being forced to spend more time on other activities.

From the above, it would appear to be reasonable to conclude that if the requirements of the revised curriculum allowed respondents to spend more time on their teaching, this would be welcomed. It is thus surprising to note that 56% of respondents indicated that "*the revised curriculum is going to cause lecturers to spend too much time on teaching in comparison to their other duties*" (table 9).

Table 9. ***Attitudes of academic staff towards the new undergraduate medical curriculum.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
The revised curriculum is going to cause lecturers to spend too much time on teaching in comparison to their other duties.	55,5	25,9	18,5
Participation in teaching activities in the revised curriculum is going to cause research output at the Faculty of Medicine to decrease.	44,4	40,7	14,8
It is more important that the decrease in research output at the Faculty be addressed at this stage than any problems with teaching.	11,1	55,6	33,3

N = 26.

This apparent contradiction may have arisen because respondents would have liked to spend time on teaching activities of their own choice, not activities thrust upon them by somebody else (Grant & Gale, 1989; Mennin & Kaufman, 1989). In the results of the work-related stress survey, six of seven respondents indicated that not being involved in decision making about your own work caused "some" or "a great deal" of stress (figure 23).

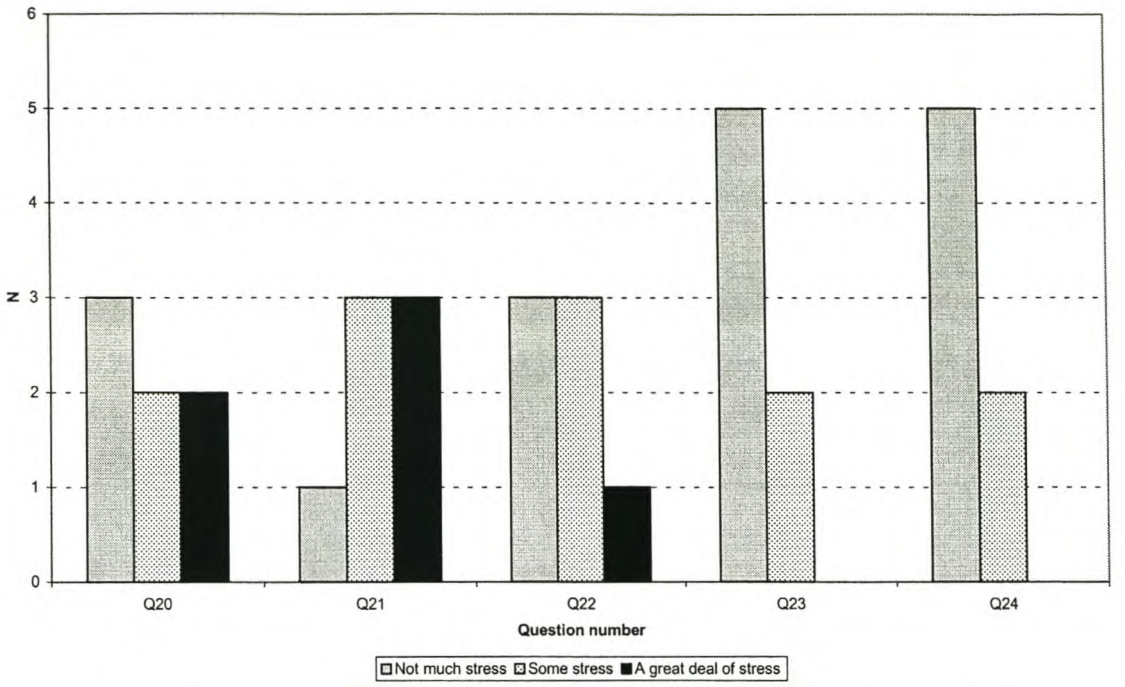

Figure 23. ***The maximum degree of stress experienced by lecturing staff in relation to various aspects of work in the three months prior to the survey.***

N = 7

Q20 *Decision making by others about aspects of your work*
Q21 *To not be involved in decision making that has an impact on your work*
Q22 *To have to do work in which you are not interested*
Q23 *Lack of clarity about the responsibilities that you carry at work*
Q24 *Insufficient authority to carry out your duties*

Significantly more respondents in the 25-34 year age group agreed that "*the revised curriculum is going to cause lecturers to spend too much time on teaching in comparison to their other duties*" than those in the 45-54 year age group (p = 0,017) (table 10). (There were no other differences when this item was analysed by other demographic variables). This may be because younger respondents are still establishing their careers and are thus likely to want to spend more time on research, which is rewarded career wise, than on teaching, which is not.

Table 10. ***Responses of academic staff of different age groups to the item "The revised curriculum is going to cause lecturers to spend too much time on teaching in comparison to their other duties".***

	ATTITUDE		
	Agree	Neutral	Disagree
Age	n	n	n
25 – 34	5	1	0
35 – 44	5	4	1
45 – 54	2	2	3
≥55	2	0	1

N = 26.

There is also a small, but significant, correlation between responses to the item "*the revised curriculum is going to cause lecturers to spend too much time on teaching in comparison to their other duties*" (table 9) and "*the revised curriculum is being forced on us*" (table 20) (Pearson r = 0,48; p<0,05).

Thus, respondents estimate that they spend a large percentage of their time on teaching (table 6). They would like to spend more time on educational activities (table 7) but perceive that the requirements of the revised curriculum will make them spend too much time on their teaching (table 9). It appears that respondents want the freedom to choose how to utilise their time (figure 23). A question that arises is how staff prioritise the time that they have available when given the choice. It is apparent from table 11 that the requirements of their employer will have the greatest influence on how respondents prioritise their time, followed by their personal interest. Given that respondents apparently do not want to be told what to do, one of the ways respondents will react to their employer's requirements could be based on what they perceive their employer rewards.

Table 11. ***Priority given by respondents to factors that influence how they divide their time between different work-related activities.***

	PRIORITY				
	1st n	2nd n	3rd n	4th n	5th n
Requirements of employer	11	10	4	2	1
Requirements of head of department	4	5	7	5	1
Personal interest	6	5	7	7	0
To progress in career	2	5	4	5	0
Other	2	0	2	6	1

N = 26.

4.2.2.2. Rewards for teaching

Five of seven respondents indicated in the survey on work-related stress that "*insufficient financial reward for the work that you do*" and "*insufficient recognition for the work that you do*" caused them "some" or "a great deal" of stress (table 12).

Table 12. ***The maximum degree of stress experienced by lecturing staff in the three months prior to the survey.***

	DEGREE OF STRESS EXPERIENCED		
	Not much n	Some n	A great deal n
Insufficient financial reward for the work that you do	2	2	3
Insufficient recognition for the work that you do	2	2	3

N = 7

Specifically, respondents believe that good teaching is not sufficiently rewarded. Only 50% of respondents in the survey on attitudes towards teaching and the revised curriculum believe that "*recognition as a good lecturer helps promote one's career at the University of Stellenbosch*" (table 13). Only 19% believe that "*teaching achievements are given sufficient weight during decision-making for promotion at the University of Stellenbosch*" and a mere 8% that "*the University of Stellenbosch gives lecturers sufficient recognition for quality teaching of students*". These last two items

have a low but significant correlation (Pearson r = 0,41; p<0,05). These findings are in keeping with those of Finucane *et al.* (1994).

Table 13. ***Attitudes of respondents towards rewards by employer for different aspects of work.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
Recognition as a good lecturer helps promote one's career at the University of Stellenbosch.	50,0	34,6	15,4
Teaching achievements are given sufficient weight during decision making for promotion at the University of Stellenbosch.	19,2	53,9	26,9
Recognition as a good researcher does more to promote one's career at the University of Stellenbosch than does recognition as a good lecturer.	73,1	23,1	3,9
Sufficient emphasis is given by the Faculty of Medicine to quality teaching of students.	30,8	42,3	26,9
The University of Stellenbosch gives lecturers sufficient recognition for quality teaching of students	7,7	46,15	46,15

N = 26.

Few respondents expect rewards from their employer for an improvement in their teaching activities (table 14). Only 42% indicated that they would expect an "*increased chance for promotion*" and 32%, "*an award for teaching*". Responses to the former item were significantly correlated with responses to the item in table 13 indicating a (lack of) belief that recognition as a good lecturer helps promote one's career at the University of Stellenbosch (Pearson r = 0,51; p<0,05).

Table 14. ***Attitudes of respondents regarding advantages they might expect from an improvement in their teaching activities.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
Increased satisfaction amongst students with their teaching experience	88,5	11,5	0,0
Better examination results for students	80,8	19,2	0,0
Students better equipped for their careers	88,5	11,5	0,0
Enthusiasm amongst students for your subject area	92,3	3,8	3,8
More work satisfaction	84,6	15,4	0,0
Increased chance for promotion	42,3	46,2	11,5
Award for teaching	32,0	48,0	20,0

N = 26

This lack of reward appears to have consequences for how respondents prioritise activities. 64% of respondents indicated that they would be unlikely to take part in staff development activities related to the revised curriculum as "*I can better utilise the time for other obligations*" and 63% because "*success with other activities* [than staff development for teaching and learning] *exerts a greater influence on my career*" (table 15). There was a significant degree of correlation in responses to these two items (Pearson $r = 0,74$; $p<0,05$). That 73% of respondents believe that "*recognition as a good researcher does more to promote one's career at the University of Stellenbosch than does recognition as a good lecturer*" (table 13) suggests that the "other activities" would include research.

Thus, respondents perceived, and were stressed by, a lack of reward for their work (table 12). More specifically, respondents consider the career-related rewards for teaching to be low and for research to be greater (table 13). This is apparently supported by the fact that very few teachers expect rewards from their employer for an improvement in their teaching activities (table 14).

Table 15. ***Factors that respondents believe could impede their participation in training activities on teaching.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
I can better utilise the time for other obligations	64,0	20,0	16,0
Previous similar activities were of little or no benefit	20,0	32,0	48,0
Success with other activities exerts a greater influence on my career	62,5	8,3	29,2
I do not expect to learn anything from something like that	4,0	28,0	68,0
A presentation based on work in another area can usually not be applied in my subject	4,0	36,0	60,0
The content of this type of presentation is not relevant to the demands of my work	4,0	36,0	60,0
No interest	4,2	20,8	75,0

N = 26.

This expectation could well be grounded in the strategic goals currently in place at the University of Stellenbosch as alluded to in Chapter 2. The University expects of lecturers to be excellent researchers and is making extra resources available to achieve this. Against the background of already sparse reward for teaching, the University also expects lecturers to change the way they teach without specifically putting extra resources into this. Respondents may well also be stretched by diverse demands on their time as indicated in figure 20.

The consequence of this is that respondents would rather spend their time on activities other than teaching than on teaching-related staff development. The "activities other than teaching" are likely to be activities that could elicit greater reward, e.g., research. This consequence could be extrapolated to other areas of respondents' teaching to provide a possible reason why staff would not make the effort to ensure congruence between specific and exit outcomes. Respondents could be reacting strategically to the environment in which they function when they choose not to make an effort to ensure congruence between specific and exit outcomes.

4.2.2.3. Interest in teaching

Respondents appear to put effort into their teaching with little expectation of reward from their employer for a job well done. Based on the attitudes reflected in table 14 it would appear that any extra time that they put into their teaching activities would likely have to be based on the belief that it would be of benefit to their students or that it would give themselves a greater sense of satisfaction. If they do not believe this, lecturers might be unlikely to put extra effort in to implement new approaches. Whether lecturers will derive a sense of satisfaction from formulating and using outcomes would probably depend in part on their attitudes towards teaching.

Respondents appear to be generally positive in their attitude towards teaching, more so than towards other aspects of their work (table 16). There were no significant differences in attitudes to teaching and other areas of work, however. Regarding the issue of bias possibly introduced by non-responders, even if all thirteen non-responders were to have indicated a negative attitude towards teaching, there would still be more staff with a positive rather than a negative attitude.

Table 16. Interest of respondents in different aspects of work.

	ATTITUDE		
	Positive	**Neutral**	**Negative**
AREA OF WORK	**%**	**%**	**%**
Teaching (undergraduate)	74,1	14,8	11,1
Teaching (postgraduate)	84,6	11,5	3,8
Research	70,4	7,4	22,2
Administration	70,4	14,8	14,8

N = 26.

Significantly more respondents rating their ability as average indicated that they enjoyed administration more than those who rated their teaching ability as above average ($p = 0,03$) (table 17).

Table 17. ***Degree of interest of academic staff in administration (of courses or department/unit) grouped by own opinion of ability as a lecturer.***

	ATTITUDE				
OPINION OF ABILITY	**Do this with pleasure** n	**No problem with this** n	**Neutral about this** n	**Don't really enjoy this** n	**Do this only because I must** n
Above average	3	5	7	1	0
Average	1	4	1	2	0
Below average	0	1	1	0	0

N = 26

This may be because those who consider their teaching ability above-average enjoy their teaching more and are thus less inclined to want to spend time on other activities. There were no other significant differences in the responses reflected in table 16 when analysed by other demographic variables.

That respondents attitude towards teaching appears to be positive is supported by the fact that 65% of respondents indicated that they would like to spend more time on their educational activities than they do at present (table 7). There was a low and insignificant correlation between responses to this item and respondents' interest in undergraduate and postgraduate teaching. Nonetheless, these results suggest that it is unlikely that a negative attitude towards teaching is the cause of lecturers not ensuring a high degree of congruence between the specific outcomes that they formulate and the exit outcomes for the programme.

Regarding the issue of possible benefit to students, there was scepticism amongst respondents as to the benefits of the approach that has been taken with the revised curriculum. Only 39% believe that "*the revised curriculum is going to bring about a positive change in the quality of education of undergraduate medical students*" (table 18). Only 42% of respondents believed that "*students who complete the revised curriculum are going to be at least as competent as doctors as students in the present*

curriculum". Responses to these two items were significantly correlated (Pearson r = 0,84; p<0,05).

Table 18. ***Attitudes of academic staff towards the new undergraduate medical curriculum.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
There are good reasons why the current undergraduate medical curriculum should be changed.	73,1	23,1	3,8
Graduates of this Faculty feel that various aspects of undergraduate medical education can be improved.	69,2	30,8	0,0
The revised curriculum is going to bring about a positive change in the quality of education of undergraduate medical students.	38,5	46,1	15,4
Students who complete the revised curriculum are going to be at least as competent as doctors as students in the present curriculum.	42,3	38,5	19,2
The education of medical students in the current curriculum cannot be meaningfully improved on.	7,7	30,8	61,5
The revised curriculum will not work in practice.	11,5	53,9	34,6

N = 26

This is not due to a belief that curriculum change is unnecessary or that it will not be beneficial. As is the case for teaching, the attitudes of respondents towards the revised undergraduate medical curriculum are generally positive (table 18). 73% of respondents believe that "*there are good reasons why the current undergraduate medical curriculum should be changed*". Furthermore, only 8% of respondents believe that "*the education of medical students in the current curriculum cannot be meaningfully improved on*". There was a tendency for respondents who perceive their own teaching ability as average to disagree more strongly than those perceiving their own teaching ability to be above average (p = 0,054) (data not shown). This could be because those who perceive their own teaching ability as above average perceive themselves to already be doing a job that cannot be improved upon.

Despite not believing that students will benefit much from the changes being implemented, 85% of respondents indicated that "*I am going to do everything that I can to help to implement the revised curriculum successfully*" (table 20). This was also even though only 35% disagree that "*the revised curriculum will not work in practice*" (table 18). Respondents in the 25-34 year age group agreed significantly more than respondents in the 45-54 year age group with the latter statement (p = 0,027) (table 19).

Table 19. ***Responses of academic staff of different age groups to the item* "The revised curriculum will not work in practice".**

	ATTITUDE		
AGE GROUP	**Agree n**	**Neutral n**	**Disagree n**
25 – 34	2	4	0
35 – 44	0	6	4
45 – 54	0	3	4
≥55	1	1	0

N = 26

If the reasoning above (that lecturers would be most likely to make an effort to implement change if there will be benefit to their students or their own sense of work satisfaction) is sound, then it would be interesting to ascertain what respondents understood by the item about helping to implement the revised curriculum and thus what it is they are prepared to do to help. It is apparent from the results of the document analysis that ensuring congruence between specific and exit outcomes was not a result of this willingness despite being specifically asked to do so.

In summary, getting lecturers to ensure a greater degree of correlation between specific and exit outcomes requires that they spend time on a task that they perceived to hold little reward for themselves or benefit for their students. If this is the case, then to improve this state of affairs would involve convincing the lecturers of the value of the teaching methods being employed in the context of the revised curriculum. This may prove difficult however that respondents have indicated that they are unlikely to place a premium on teaching related staff development (table 15).

4.2.2.4. Ownership of the curriculum

Another reason respondents may resist engaging with the process of change may be a lack of ownership of the product of change, in this case, the revised curriculum (Grant and Gale, 1989; Mårtenson, 1989; Mennin and Kaufman, 1989). Fifty percent of respondents believe that "*the revised curriculum is being forced on us*" (table 20).

Table 20. ***Attitudes of academic staff towards the new undergraduate medical curriculum.***

	ATTITUDE		
	Agree %	**Neutral %**	**Disagree %**
The revised curriculum is being forced on us.	50,0	23,1	26,9
I have had an opportunity to voice my opinion on the revised curriculum.	53,9	11,5	34,6
The opinions of lecturers on the revised curriculum are taken into consideration during planning.	34,6	34,6	30,8
I am going to do everything that I can to help to implement the revised curriculum successfully.	84,6	15,4	0,0
The revised curriculum undermines my right to take decisions about teaching and evaluation of students in my subject area.	19,2	34,6	46,2
My integrity as a professional person is affected in the revised curriculum because I am partially relieved of my responsibility to take decisions about the teaching and evaluation of students.	7,7	53,8	38,5

N = 26

Even though all 41 staff surveyed had been involved in planning workshops, only 54% of respondents indicated that "*I have had an opportunity to voice my opinion on the revised curriculum*" and, perhaps more significantly, only 35% perceived that "*the opinions of lecturers on the revised curriculum are taken into consideration during planning*". Women were significantly more likely than men to disagree with this statement (p = 0,01) (table 21). Given that women with more than ten years' teaching experience appear to be underrepresented in this group of respondents (table 5), this should be generalised only with caution.

Table 21. ***Responses of academic staff of different gender to the item "The opinions of lecturers on the revised curriculum are taken into consideration during planning".***

	ATTITUDE		
GENDER	**Agree n**	**Neutral n**	**Disagree n**
Female	2	1	5
Male	7	8	3

N = 26

Nineteen percent of respondents believe that "*the revised curriculum undermines my right to take decisions about teaching and evaluation of students in my subject area*" and 8% that "*my integrity as a professional person is affected in the revised curriculum because I am partially relieved of my responsibility to take decisions about the teaching and evaluation of students*" (table 20). A large percentage of respondents (35% and 54% respectively) did not commit themselves to an opinion for or against these statements. Respondents in the 45-54 year age group tended to disagree more strongly with the latter statement than did respondents in the 25-34 year age group (p = 0,051) (data not shown).

There were no other differences in responses when analysed by other demographic variables.

These results will be summarised in Chapter 5 and conclusions drawn. Where possible, recommendations will be made about how these findings could be confirmed and strategies developed that could be utilised to ensure a greater degree of congruence between the specific and exit outcomes in future.

CHAPTER FIVE:
CONCLUSIONS AND RECOMMENDATIONS

5.1 PROBLEMS AND WEAKNESSES

One potential problem with carrying out a case study is achieving reliability and validity. Steps were taken with the different research techniques used, i.e., document analysis and questionnaire surveys, to ensure the reliability and validity of each, and thus ultimately of the case study.

One of the potential weaknesses of this study is the subjectivity of the process of assigning congruence between specific and exit outcomes. This assignment was subjected to both internal and external validation in a sample of 2% of 48 320 instances of assigning congruence between specific and exit outcomes. There was an error rate of approximately 1%, which is considered acceptable to draw valid conclusions. This could be improved by defining the constructs used in the formulation of the exit outcomes. This could also be done by member checks, with members of module teams being asked to verify the assignment of congruence that has been made.

5.2 THE DEGREE OF CONGRUENCE BETWEEN SPECIFIC AND EXIT OUTCOMES

The vast majority of specific outcomes formulated for phase II of the revised undergraduate medical curriculum at the University of Stellenbosch were congruent with one or more of the exit outcomes formulated for the programme. Success of students in assessment of student achievement can, thus, be seen as an indicator that students are developing towards the exit outcomes for the programme. However, even though almost all specific outcomes are congruent with one or more exit outcomes, the majority of specific outcomes address only three of the exit outcomes. Twenty-seven exit outcomes are addressed by no, or less than 5% of, specific outcomes (table 2). It is considered likely that if the specific outcomes are used as the basis of designing assessment activities, then assessment will be limited to a few of the exit outcomes and will probably not address the others. Considered against the criteria of

Harden *et al.*, (1999), this raises the concern that all exit outcomes appropriate to this phase are not being adequately addressed.

That many outcomes are not being addressed appears to be the result of most module teams formulating specific outcomes that address only a few exit outcomes. Six of thirteen modules address five or less of the 32 exit outcomes (table 4). It would thus appear that to ensure that exit outcomes are adequately addressed by specific outcomes during phase II of the curriculum, module teams would have to be persuaded to change what they are formulating specific outcomes about. The low number of exit outcomes being addressed per module may relate to lecturers designing activities that address the exit outcomes, but not formulating specific outcomes to indicate this. Some evidence that this may well be the case was presented after an examination of the study guide for one of the modules that the researcher was involved with in terms of design and teaching. One strategy to try and increase the extent to which exit outcomes are addressed by specific outcomes should be to ensure that all the outcomes implicit in the teaching-learning activities that lecturers have designed for modules are explicitly stated as specific outcomes.

In some instances, it may be appropriate that an exit outcome is not addressed by the specific outcomes for a phase II module. This would be the case where it is not possible to address that exit outcome in a theoretical module. It could also be argued that certain of the exit outcomes can only be addressed as students become both more experienced in generic academic skills and more familiar with course content. However, this study has revealed no evidence that such outcomes are increasingly addressed as phase II progresses (figures 1 to 5).

The low number of exit outcomes addressed per module may be due to lecturers taking neither specific nor exit outcomes into consideration when designing teaching-learning activities (or when designing assessment activities). There is some evidence from student feedback on the modules of phase II of the curriculum that this may be the case (data not shown). If this is the case, then the "hidden curriculum" referred to by Snyder (cited in Ramsden, 1992: 67) is still very much the curriculum that is in force as far as students are concerned. Attempts to make the curriculum that is designed the same as that which is taught and assessed will, therefore, not have succeeded. A logical extension of this study would be to determine the extent to

which specific outcomes, and through them, the exit outcomes, are reflected in teaching-learning activities and in assessment of student achievement in the modules of phase II. Even if follow-up studies show that there is a high degree of congruence between specific outcomes and assessment for phase II of the revised curriculum, this will only be an indication that students are developing towards the achievement of a limited number of the exit outcomes for the programme. Assessment might address the exit outcomes more extensively than the specific outcomes do. Formulating specific outcomes that match what is being assessed could be another strategy to increase the extent to which specific outcomes address exit outcomes.

Overall, then, there appears to be an overemphasis of certain outcomes, but no guidelines exist to suggest what percentage of specific outcomes should address any given exit outcome to ensure that that outcome is realised. To determine whether the extent to which this has been done in phase II of the revised undergraduate medical curriculum is optimal, studies should be undertaken to determine the congruence between what is assessed and what is included in the specific outcomes. This may give some indication of whether the formulation of a single specific outcome relating to, for example, the interpretation of literature, correlates with the achievement of this outcome by students. It may be that there is a certain minimum proportion of specific outcomes that must address a given exit outcome before the specific outcome is either assessed by lecturers or paid attention to by students.

There were a few specific outcomes not considered congruent with any exit outcomes. These should be scrutinised for relevance. If they are considered important, then it may be necessary to consider adapting the exit outcomes as stated in the *Profile of the Stellenbosch Doctor*. If they are not important, then consideration should be given to removing them from the specific outcomes of phase II of the revised curriculum.

5.3 FACTORS THAT HAVE INFLUENCED THE CONGRUENCE OR LACK THEREOF BETWEEN SPECIFIC AND EXIT OUTCOMES

Given the limited extent to which the exit outcomes are addressed by specific outcomes, a question arises as to why this is the case. There is little direct evidence here to explain the lack of correlation between specific and exit outcomes, but these

results open several avenues for further exploration. There are indications that this lack of congruence could be due to:

i. a large number of competing demands on lecturers' time (c.f. Section 4.2.2.1 and figure 20), with research-related activities both causing more stress (c.f. Section 4.2.2.1, figure 21 and figure 22) and perceived as being better rewarded than teaching-related activities (c.f. Section 4.2.2.2 and table 13) and, thus, perhaps more likely to enjoy priority when time is allocated to tasks ;
ii. lecturers not wanting to spend time doing work prioritised by others as important (c.f. Section 4.2.2.1, table 9 and figure 23);
iii. perceptions that work related to the revised curriculum is being forced on staff without necessarily consulting them (c.f. Section 4.2.2.4 and table 20); this despite the fact that requirements of their employer is the given the highest priority when staff determine how to divide their time (c.f. Section 4.2.2.1 and table 11); and
iv. the perception that the strategies adopted for the revised curriculum will not necessarily benefit students (c.f. Section 4.2.2.3 and table 18).

These preliminary findings need to be confirmed using more direct methods. An appropriate strategy would probably be semi-structured interviews, which would allow the exploration of factors that lecturers do and do not take into account when formulating specific outcomes. The results of such a study could inform modifications of the implementation process. It could also allow the development of more focussed staff development strategies to try and ensure a greater degree of congruence between the specific and exit outcomes. For students, it would ultimately provide a logical thread of design from stated outcomes to teaching-learning activities and assessment. This would hopefully help students to effectively utilise the opportunities that exist in the curriculum.

The low degree of congruence between specific and exit outcomes appears *not* to be due to:

i. lecturers spending only a small portion of their time on teaching activities (c.f. Section 4.2.2.1 and table 6);

ii. a negative attitude towards teaching (c.f. Section 4.2.2.3, table 16, Section 4.2.2.1 and table 7);

iii. the belief that curriculum change is unnecessary (c.f. Section 4.2.2.3 and table 18); and

iv. the intention to not help try and implement the revised curriculum successfully (c.f. Section 4.2.2.4, table 20 and Section 4.2.2.3).

5.4 STRATEGIES THAT COULD ENHANCE THE DEGREE OF CONGRUENCE BETWEEN SPECIFIC AND EXIT OUTCOMES

Strategies to enhance the extent to which specific outcomes address exit outcomes could include offering greater rewards for teaching. Lecturers indicated that the most common criterion by which they prioritise their time is the requirements of their employer (table 11). This study provides no evidence as to how lecturers perceive these requirements, but it would seem logical to assume that this would be deduced from, amongst other things, what their employer rewarded. This, taken together with the perception that rewards offered by the University of Stellenbosch for research are greater than rewards offered for teaching (table 13), indicates that lecturers are likely to prioritise time for research rather than extra teaching related activities like formulating outcomes. This would especially be the case where they do not perceive that the educational strategies being used are going to benefit students (table 18). Increasing reward for teaching is an institutional issue, one which the Faculty of Medicine can take up, but not ultimately address in isolation from the rest of the University, and which is only likely to change over the medium to long term.

Other strategies that could enhance congruence between specific and exit outcomes in the short term could include ensuring that lecturers feel that they have a greater degree of input into, and ownership of, the curriculum. This could include an increased opportunity to criticise and suggest changes to the model that has been adopted (c.f. Mårtenson, 1989).

The results in table 14 suggest other strategies that could be successful in the short term. One such strategy would be to convince lecturers of the possible benefits to students of the educational approach adopted. Exploring why so few lecturers believe that the revised curriculum will positively influence the education of undergraduate

medical students (table 18) could suggest ways to approach the problem. Lecturers apparently need to be more convinced of the validity of the theory underlying the model that has been adopted, for example, during staff development activities. This could prove difficult, however. Sixty-four percent of respondents to the survey on teaching and the revised curriculum indicated they were unlikely to attend staff development activities related to teaching, as they could better utilise the time for other activities and 63% because success with other activities has a greater influence on their careers (table 15).

In the meantime, as students move through the revised curriculum and more and more lecturers come into contact with them, so the lecturers may be convinced of the value of the approaches taken. Lecturers may also become convinced that the approach is worthwhile if students achieve good results in assessment and if students indicate satisfaction with their experiences in student feedback.

Another avenue for exploration suggested by the results in table 14 is determining what would give lecturers a greater sense of work satisfaction while using teaching-learning strategies advocated for the revised curriculum. This could also have the effect of getting lecturers to take more trouble than they already do with the formulation of outcomes.

5.5 SUGGESTED EXTENSIONS OF THIS WORK

Other extensions to this study could include validating the exit outcomes against national and international criteria, determining whether what happens in the classroom is likely to help students achieve the stated outcomes, determining whether assessment matches the stated outcomes and, ultimately, whether students achieve the stated outcomes of the programme.

5.6 RECOMMENDATIONS

In summary, with a view to ensuring the educational quality of the revised undergraduate medical curriculum at the University of Stellenbosch, and ultimately making a contribution to external quality assurance, this study recommends that:

1. the reliability of the assignment of congruence between specific and exit outcomes be further validated by:
    a. defining the constructs used in the formulation of the exit outcomes to prevent differing interpretations of these outcomes;
    b. using inputs from members of the module teams that formulated the specific outcomes for each of the modules of phase II;
2. a determination be made of which exit outcomes can appropriately be addressed in phase II;
3. the degree to which exit outcomes appropriate to phase II are addressed by specific outcomes be increased; this could be done by:
    a. determining whether there are specific outcomes implicit in the activities that are presented during phase II but not formulated as specific outcomes and, where necessary, formulating additional specific outcomes;
    b. further investigating factors influencing the degree of congruence between specific and exit outcomes by methods that could include interviews with lecturers involved in implementing modules in phase II and be based on factors named above as possibly contributing to the lack of congruence between specific and exit outcomes;
    c. investigating the possibility of co-ordinating the efforts of different module teams to ensure that outcomes other than (lower order) cognitive outcomes are addressed more frequently and coherently in modules occurring later in phase II than those occurring earlier;
4. the extent to which teaching-learning activities utilised in phase II are likely to help students achieve the specific outcomes be determined;
5. the extent to which specific outcomes, and, through them, the exit outcomes, are reflected in assessment of student achievement in the modules of phase II be determined;
6. a determination be made of what factors influence lecturers when they design assessment activities, including whether they take specific and exit outcomes into consideration;
7. factors determining whether exit outcomes for which only a few specific outcomes are formulated are addressed in assessment be investigated;

8. evidence be gathered from assessment of student achievement and other sources to determine whether students have achieved the stated outcomes by the end of phase II;
9. reasons why lecturers do not believe that the educational strategies being used are going to benefit students be determined;
10. factors that would give lecturers a greater sense of work satisfaction whilst employing educational strategies advocated for the revised curriculum be determined;
11. the following modifications to the implementation process be considered to ensure that lecturers feel that they have adequate input into, and ownership of, the curriculum:
    a. offering lecturers more information on the rationale for the educational approach being taken into consideration with the design of the revised curriculum;
    b. offering lecturers more opportunity to criticise and suggest changes to the model that has been adopted;
12. consideration be given to offering greater rewards for teaching as a means of indicating to lecturers that this is a priority for their employer; and
13. exit outcomes be validated against national and international criteria.

The challenge that the Medical School at the University of Stellenbosch faces is to ensure that the envisioned changes are realised. This study has not endeavoured to evaluate whether what is happening in the classroom matches outcomes, only the extent to which the specific outcomes being *formulated* match the exit outcomes for the programme. It appears that the implementation process has not proceeded optimally, thus far, and that steps will need to be taken to change this. This study has highlighted some avenues that could be followed to modify the implementation process.

Once attempts are being made to modify the implementation process, it will again be necessary to monitor the degree of congruence between specific and exit outcomes to determine whether this has improved. On the one hand, this could be undertaken piecemeal as each module and its study guide is revised. This would certainly be a less daunting task than trying to assign congruence between the exit outcomes and the

specific outcomes of all thirteen modules of phase II of the curriculum at once. However, it will also be critical to consider the specific outcomes of phase II as a whole to determine, for example, whether higher order outcomes are increasingly addressed during the course of the phase. This process should also be expanded to include the third and final phase of the curriculum that is currently being implemented. Hopefully, this will help ensure that the curriculum that is actually implemented will be as similar as possible to the dream envisioned during planning.

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APPENDICES

APPENDIX A:

The Profile of the Stellenbosch Doctor (Faculty of Medicine, 1998)

The recently graduated Stellenbosch doctor must possess the necessary knowledge, skills and attitudes to optimally utilise the opportunities available during the intern year in order to be able to function autonomously in the primary health care sector after this period, as well as being equipped with the necessary ability and insight to develop further as practitioner at secondary and tertiary level.

To fulfil these requirements, the recent graduate will exhibit the following professional characteristics:

Knowledge

1. Basic knowledge of necessary medically applicable scientific and mathematical concepts.
2. Basic and relevant knowledge of the normal function and morphology of the human body and psyche.
3. Relevant knowledge of the abnormal function and morphology of the human body and psyche.
4. Knowledge of the maintenance of health and prevention of disease (physical, mental and social).
5. Knowledge of the recognition and diagnosis of common diseases and abnormalities of the human body and psyche.
6. Basic knowledge of the relevant treatment and rehabilitation options.
7. Knowledge of the appropriate use and limitations of special investigations and diagnostic methods.
8. Knowledge of factors in the community environment that can influence health.
9. Knowledge of finances, management and structures of health care.
10. Basic knowledge of ethics and legal aspects that are applicable to medicine.
11. Basic knowledge of the interaction between biological, psychological and sociological factors that play a role in health.
12. Basic knowledge of alternative and complementary medicine.
13. Knowledge of the basic principles of research methodology.

Attitudes/views

14. Respect for person and life.
15. A loyal and ethically accountable disposition towards the profession, patients and community.
16. An acknowledgement of the limitations of own knowledge and skills.
17. A positive disposition towards continuing professional development.
18. A willingness for involvement and service within the broad community.
19. An empathetic disposition towards the patient, their family as well as the community and a willingness for accessibility.
20. The acceptance of his/her full responsibility within the patient/doctor relationship.
21. The willingness to set a positive example regarding social responsibilities and obligations.

Skills

22. The ability to integrate, interpret and apply knowledge.
23. The ability to think and act in a problem-solving fashion.
24. The ability to communicate effectively with patients from different cultural groups in the process of diagnosis and management.
25. Sufficient skills in diagnostic and therapeutic procedures to be able to function autonomously as a doctor in primary care.
26. The ability to function holistically within the context of family and community.
27. The ability to establish and manage a primary health infrastructure.
28. The ability to interpret and apply relevant literature.
29. The ability to function effectively in stressful circumstances.
30. The ability to function in the broad team context.
31. The ability to take part in and guide continuous and in-service training as well as community education.
32. The ability to effectively utilise relevant technological resources (e.g., computers) in the health environment.

APPENDIX B:

General principles and/or guidelines adopted by the Faculty Board for revision of the curriculum (Faculty of Medicine, 1997).

Translated by the author

The Faculty Council decided that	General principles and/or guidelines
1. a core curriculum be developed that is relevant to the needs of the total Southern African (*sic*) community	2.1 Concentrate on "must" knowledge in modules/themes 1.1 focus on diseases/aspects of health in family practice 1.2 important less common diseases in family practice 1.3 prioritising according to morbidity, mortality, frequency 2.2 "Should" and "can" knowledge can be included in elective modules
2. said core curriculum will be continuously adapted with a view to constantly remaining relevant	2.1 Create an appropriate Faculty structure (control structure) that continuously monitors and adapts the core curriculum as regards relevance and content/ presentation/ evaluation 2.2 Curriculum revision to take place every 3-5 years
3. the curriculum will aim to deliver a product that 3.1 can serve the general practice (*sic*)	3.1.1 Ensure a generalist/family practitioner approach 3.1.2 Co-opt a family practitioner appointed from the organised profession (South African Medical Association], Academy of Family Practice) to the curriculum control structure and module teams where appropriate
3.2 can enter the public sector	3.2.1 expose the student to the generalist in the public sector as a role model
3.3 can function in the periphery	3.3.1 focus larger portion of practical training in the periphery; not only the portion that cannot be presented in [Tygerberg Hospital], but as a general principle

The Faculty Council decided that	General principles and/or guidelines
3.4 can undertake postgraduate study	3.4.1 maintenance of broad general foundation/standard for entry to postgraduate study. This assumes a general approach rather than knowledge level 3.4.2 Elective modules make provision for students to immerse themselves in greater detail in certain subject areas (specialist as well as family practice). The establishment of basic research skills can also occur here.
4. education will be provided that will be aimed at the maximal self-development of the student	4.1. move away from lecture approach 4.2. emphasis on self-study and development of self-study packages 4.3. optimise student involvement and responsibility in the learning process (work books, [Medical Computer Assisted Area], library, etc.) 4.4. create opportunities for development of leadership abilities
5. education will be provided that will be aimed at the development of a positive attitude towards, as well as the capacity for, self-study in students, so that they are equipped and motivated to be life-long learners	5.1 See 4.1-4.3 above 5.2 create awareness of tempo of change in medical sciences environment 5.3 emphasis on exploitation and processing of information rather than memorisation of facts
6. the [Primary Health Care] approach in the curriculum will be expanded further, with specific emphasis on the prevention and early identification of diseases and the biopsychosocial model	6.1 Exposure to community life style and problems, with disease profiles unique to such communities 6.2 Emphasise holistic approach 6.3 Exposure to not only "periphery" but to individuals or structures that function primarily there 6.4 Emphasise promotion of health, prevention of disease, early detection as well as rehabilitation of diseases

The Faculty Council decided that	General principles and/or guidelines
7. the student will be equipped during training to completely support the nurse as primary service deliverer and to be able to act as leader of the [Primary Health Care] team	7.1 Create opportunities during training to work as a member of a health team in a [Primary Health Care] environment 7.2 Emphasise principles of effective team work 7.3 Emphasise responsibilities/modus operandi/limitations of the different professional groups in the team
8. a community orientated and partially community based approach to training must be followed, with involvement of family practitioners where relevant	8.1 Involvement of Family Medicine in the planning/presentation of module themes 8.2 Optimise involvement of family practitioners in both public and private sectors in undergraduate education
9. resource limitations should be overcome by: 9.1 the development of self-study packages	9.1.1 See 4.2 and 4.3
9.2 the development of [computer aided instruction] and audio-visual programmes	9.2.1 the potential use of computer technology must be investigated as a matter of urgency 9.2.1.1 purchase of computer programmes for [Medical Computer Assisted Area] 9.2.1.2 use of Internet 9.2.1.3 multimedia development
9.3 rationalisation and sharing of training infrastructure	9.3.1 See 3.1, 3.3, 9.2 and 9.4
9.4 utilisation and sharing of lecturers and facilities outside of the faculty	9.4.1 Create, as a matter of urgency, mechanisms to identify, accredit, orientate and train outside lecturers as regards the Faculty's curriculum and our teaching approach, so that they can adapt and join these
10. where appropriate, an integrated approach to the course (*sic*) must be followed	10.1 First identify everything that can be presented in an integrated manner. In other words, discipline specific aspects (pre-clinical and clinical) are identified by exclusion. 10.2 Discipline-specific parts of the curriculum are developed later in the process

The Faculty Council decided that	General principles and/or guidelines
11. monitoring mechanisms must be created to ensure the quality, standard and appropriateness of undergraduate education	11.1 Function of Undergraduate Control Structure

APPENDIX C:

Priorities for the educational approach adopted by the Faculty Board for revision of the curriculum (Faculty of Medicine, 1997).

Translated by the author

1. Only half of the roster time per day may be structured. The other half must be available for directed self-study ([Medical Computer Assisted Area], spontaneous small group work, library etc.)
2. Formal lectures must be limited to the minimum.
3. Self-study components/structured activities must be maximised.
4. Modules and themes must be composed and presented in an entirely objective-directed manner. Objectives must be clearly specified and made available to students.
5. Maximum integration in the course as a whole must be engineered by using, for example, work books, problem orientated presentations etc.
6. Small group work, with provision for feedback mechanisms, must enjoy a high priority.
7. Resources must be identified and communicated to students (selected, appropriate, focussed on objectives).
8. The maximal extent of pre-clinical knowledge/information/input must be built into modules and only the parts that cannot be meaningfully included therein must be moved as "subject terminology" to the pre-clinical portion of the course that follows the first six months
9. Optimum exposure to clinical material is an important pillar of the training process.

APPENDIX D:

Questionnaire used to survey staff attitudes towards teaching and the revised curriculum.

Kurrikulum '99
Vraelys oor Onderrig en oor die Nuwe Kurrikulum

Beste kollega

Ek is tans met 'n Meestersgraad in Hoër Onderwys besig. As deel van my graad, moet ek voorstelle maak oor hoe dosente in hulle werkstaak ondersteun kan word. Met die oog op die formulering van hierdie voorstelle, en met die implementering van die nuwe voorgraadse mediese kurrikulum wat voorlê, wil ek graag ondersoek instel na die kennis en houdings van dosente in die Fakulteit ten opsigte van onderrig in die breë en die nuwe kurrikulum. Hierdie vraelys word dus gestuur aan alle dosente in departemente wat studente in die tweede fase van die nuwe kurrikulum gaan onderrig vanaf Julie vanjaar. Ek sal baie dankbaar wees indien u 'n paar minute van u tyd sal afstaan om hierdie anonieme vraelys te voltooi. Dit behoort u ongeveer 15 minute te neem.

Indien u 'n tydjie het, sal ek bly wees indien u hierdie vraelys sommer nou sal voltooi en aan my terugstuur in die vooraf-geadreseerde koevert hierby ingesluit. Indien u die vraelys later gaan invul, sal ek dit waardeer indien u dit voor 24 April 1999 aan my kan terugstuur. Indien u die vraelys nie voor 30 April sal kan voltooi nie, of indien u nie van plan is om hierdie vraelys te voltooi nie, sal ek bly wees indien u die relevante blokkie hieronder sal merk en die vraelys onvoltooid aan my sal terugstuur.

By voorbaat dankie vir u tyd.

François Cilliers

Department Geneeskundige Fisiologie
Kr F511
Fisan-gebou
Tel: 389

Sal nie die vraelys voor 30 April kan voltooi nie	
Kies om hierdie vraelys nie te voltooi nie	

AFDELING A: AGTERGROND

Beantwoord asseblief elk van die volgende vrae deur om een kruisie per vraag in die toepaslike blokkie op hierdie vorm te trek.

1. Wat is u posbeskrywing?	Professor	
	Senior lektor/Konsultant	
	Lektor/Konsultant	
	Lektor/Kliniese assistant	
	Junior lektor	
	Ander (*spesifiseer asb.*)	
2. Gee asseblief 'n aanduiding van u ouderdom:	< 25	
	25 - 34	
	35 - 44	
	45 - 54	
	≥ 55	
3. Watter geslag is u?	Vroulik	
	Manlik	
4. Hoeveel jaar ondervinding het u van onderrig (aaneenlopend of onderbroke)?	0-4	
	5-9	
	10-14	
	≥15	
5. Hoe gereeld is u gedurende die akademiese jaar by die opleiding van studente betrokke?	Weekliks	
	Maandeliks	
	Minder as maandeliks	
6. Gee asseblief 'n skatting van u vermoë as 'n dosent:	Bogemiddeld	
	Gemiddeld	
	Ondergemiddeld	
7. By watter groep resorteer die departement waar u primêr werksaam is?	Anatomie, Biochemie, Fisiologie, Histologie	
	Anatomiese Patologie, Chemiese Patologie, Farmakologie, Hematologiese Patologie, Immunologie, Mikrobiologie, Virologie	
	Ander	

AFDELING B: U VOORBEREIDING VIR ONDERRIG

Beantwoord asseblief elk van die volgende vrae (8, 9, ens.) deur om 'n kruisie in die toepaslike blokkies op hierdie vorm te trek. Beantwoord by elke vraag elk van die onderafdelings (a, b, ens.).

8. Watter van die volgende hulpbronne het u <u>benut</u> om oor onderrig te leer, en wat was die <u>impak</u> van elk van die bronne wat u benut het op u kennis en/of praktyk van onderrig?

	BENUT		IMPAK				
	Ja	Nee	Groot en positief	Redelik en positief	Geen	Redelik en negatief	Baie en negatief
a. Moes uit eie ondervinding leer soos wat ek dit gedoen het							
b. By kollegas geleer							
c. Opvoedkunde deskundiges gekonsulteer							

		BENUT		IMPAK				
		Ja	Nee	Groot en positief	Redelik en positief	Geen	Redelik en negatief	Baie en negatief
d.	Joernaalartikels oor onderrig							
e.	Boeke oor onderrig							
f.	World Wide Web							
g.	Induksie-/oriënteringsprogram bygewoon							
h.	Seminare/werkswinkels oor onderrig bygewoon							
i.	Kongresse oor onderrig bygewoon							
j.	Besprekings of werkswinkels oor onderrig by vakkundige kongresse bygewoon							
k.	Formele onderrig kwalifikasie (*Spesifiseer asseblief*:)							
l.	Ander (*Spesifiseer asseblief*:)							

9. Dui asseblief aan hoe gereeld u oor die afgelope 5 jaar op u eie inisiatief van elk van die volgende gebruik gemaak het om u kennis aangaande, of praktyk van, die onderrig te ontwikkel.

L.W.: HIERDIE GAAN NIE OOR DIE INHOUD VAN DIT WAT U DOSEER NIE, MAAR OOR HOE U DIT DOSEER. KIES ASSEBLIEF DIE BLOKKIE WAT U MEES GEREELDE GEBRUIK VAN DIE HULPBRON AANDUI.

		Elke maand	Elke semester	Elke jaar	Minder as jaarliks	Nooit
a.	Konsulteer kollegas					
b.	Konsulteer opvoedkunde deskundiges					
c.	Joernaalartikels oor onderrig					
d.	Boeke oor onderrig					
e.	World Wide Web					
f.	Seminare of werkswinkels oor onderrig					
g.	Kongresse oor onderrig					
h.	Besprekings of werkswinkels oor onderrig by vakkundige kongresse					
i.	Ander (*spesifiseer asb.*)					

10. <u>Hoe gereeld</u> gebruik u elk van die volgende om u onderrig te evalueer, en wat was die <u>impak</u> van elk op u kennis en/of praktyk van onderrig:

KIES ASSEBLIEF DIE BLOKKIE WAT U <u>MEES GEREELDE GEBRUIK</u> VAN DIE HULPBRON AANDUI.

		HOE GEREELD					IMPAK				
		Elke semester	Jaarliks	Elke 2-5 jr	Nie die laaste 5 jr nie	Nooit	Groot en positief	Redelik en positief	Geen	Redelik en negatief	Baie en negatief
a.	Studenteterugvoer										
b.	Eweknie evaluering										
c.	Konsultasie met onderrig adviseur/opvoedkunde deskundiges										
d.	Onderrigportefeulje										
e.	Ander (*spesifiseer asb.*)										

11. Dui asseblief u belangstelling in elk van die volgende areas aan deur 'n kruisie in die toepaslike blokkie te trek.

		Doen dit graag	Geen probleem hiermee nie	Neutraal hierteenoor	Doen dit nie eintlik graag nie	Doen dit slegs omdat ek moet
a.	Onderrig (voorgraads)					
b.	Onderrig (nagraads)					
c.	Navorsing (insl. administrasie van navorsing)					
d.	Administrasie (van kursusse of departement/eenheid)					
e.	Kliniese werk (indien u 'n M.B.,Ch.B. of M.Med. het)					

12. Dui asseblief aan hoe goed u voel u toegerus is om effektief aan elk van die volgende werksareas deel te neem:

		Beskik oor alle nodige vaardighede	Beskik oor die meeste nodige vaardighede	Beskik oor sommige nodige vaardighede	Kort die meeste nodige vaardighede	Kort alle nodige vaardighede
a.	Onderrig (voorgraads)					
b.	Onderrig (nagraads)					
c.	Navorsing (insl. administrasie van navorsing)					
d.	Administrasie (van kursusse of departement/eenheid)					
e.	Kliniese werk (indien M.B.,Ch.B. of M.Med.)					

13. Hoe belangrik dink u is sukses in elk van die volgende werksareas tot u sukses in u loopbaan as dosent by die Universiteit van Stellenbosch?

		Baie belangrik	Dra by	Van min belang
a.	Onderrig (voorgraads)			
b.	Onderrig (nagraads)			
c.	Navorsing (insl. administrasie van navorsing)			
d.	Administrasie (van kursusse of departement/eenheid)			
e.	Kliniese werk (indien M.B.,Ch.B. of M.Med.)			

14. Watter voordeel sou u verwag om van 'n verbetering in u onderrig aktiwiteite te kry?

		Stem sterk saam	Stem saam	Neutraal	Verskil	Verskil sterk
a.	Verbeterde bevrediging onder studente met hulle onderrigervaring					
b.	Beter eksamen uitslae vir studente					
c.	Studente beter toegerus vir hulle loopbaan					
d.	Entoesiasme onder studente vir u vakgebied					
e.	Meer werksbevrediging					
f.	Verbeterde kans vir bevordering					
g.	Toekenning vir onderrig					
h.	Ander (spesifiseer asb.:)					

15. Dui asseblief aan hoe waarskynlik u van die volgende hulpbronne gebruik sal maak om u kennis van onderrig te ontwikkel indien dit beskikbaar sou wees:

		Sal dit beslis gebruik	Sal dit dalk gebruik	Weet nie	Sal dit dalk nie gebruik nie	Sal dit beslis nie gebruik nie
a.	Maandelikse nuusbrief oor onderrig					
b.	Maandelikse spreker oor onderrig te Tygerberg					
c.	Joernaalklub oor onderrig te Tygerberg					
d.	Intradepartementele gesprekke oor onderrig					
e.	Seminare oor onderrig te Stellenbosch					
f.	Seminare oor onderrig te Tygerberg					
g.	Jaarlikse daglange werkswinkel oor onderrig te Tygerberg					
h.	Opvoedkunde deskundiges te Stellenbosch					
i.	Opvoedkunde deskundiges te Tygerberg					
j.	Geldelike steun vir navorsing oor onderrig					
k.	Studieverlof om navorsing te doen oor onderrig					

16. Watter faktore dink u sou u deelname aan opleidingsaktiwiteite oor onderrig belemmer?

		Stem sterk saam	Stem saam	Neutraal	Verskil	Verskil sterk
a.	Kan die tyd tot groter voordeel benut vir ander verpligtinge					
b.	Vorige sulke aktiwiteite was van min of geen nut					
c.	Sukses met ander aktiwiteite oefen 'n groter invloed op my loopbaan uit.					
d.	Verwag nie om iets uit so iets te leer nie					
e.	'n Aanbieding gebaseer op werk in 'n ander vakgebied kan gewoonlik nie in my vakgebied toepgepas word nie.					
f.	Die inhoud van sulke aanbiedings is nie relevant vir die vereistes van my werk nie.					
g.	Geen belangstelling hierby nie					
h.	Ander (spesifiseer asseblief:)					

AFDELING C: U MENING OOR ONDERRIG EN DIE NUWE KURRIKULUM

Beantwoord asseblief elk van die volgende vrae (17, 18, ens.) deur om 'n kruisie in die toepaslike blokkies op hierdie vorm te trek. Gee asseblief u mening oor elk van die stellings (a, b, ens.).

17. Hoe voel u omtrent onderrig?

		Stem sterk saam	Stem saam	Neutraal	Verskil	Verskil sterk
a.	Indien ek die tyd gehad het, sou ek graag meer tyd aan my onderrig aktiwiteite wou spandeer as wat tans die geval is.					
b.	Ek sal graag op 'n deurlopende basis insette wil hê oor onderrig.					
c.	'n Dosent se onderrigvaardighede kan deur opleiding verbeter word.					
d.	Ek sal dit nuttig vind om opleidingsaktiwiteite oor onderrig by te woon.					
e.	Herkenning as 'n goeie dosent help om 'n mens se loopbaan by die Universiteit van Stellenbosch te bevorder.					
f.	Onderrigprestasies word genoegsaam in ag geneem tydens besluitneming oor bevordering by die Universiteit van Stellenbosch.					
g.	Herkenning as 'n goeie navorser is meer bevorderlik vir 'n mens se loopbaan aan die Universiteit van Stellenbosch as herkenning as 'n goeie dosent.					
h.	Voldoende klem word deur die Fakulteit Geneeskunde aan kwaliteit onderrig van studente geplaas.					
i.	Die Universiteit van Stellenbosch gee aan dosente voldoende erkenning vir kwaliteit onderrig van studente.					

18. Hoe voel u omtrent die nuwe voorgraadse mediese kurrikulum?

	Stem sterk saam	Stem saam	Neutraal	Verskil	Verskil sterk
a. Die nuwe kurrikulum gaan 'n positiewe verandering in die kwaliteit van onderrig van voorgraadse mediese studente teweegbring.					
b. Daar bestaan goeie redes waarom die huidige voorgraadse mediese kurrikulum verander moet word.					
c. Studente wat die nuwe kurrikulum voltooi gaan minstens so bekwaam wees as geneeshere as studente in die huidige kurrikulum.					
d. Ek gaan alles doen wat ek kan om te help om die nuwe kurrikulum suksesvol te implementeer.					
e. Deelname aan onderrigaktiwiteite in die nuwe kurrikulum gaan maak dat navorsingsuitsette aan die Fakulteit van Geneeskunde gaan afneem.					
f. Daar is voldoende dosente beskikbaar om die benaderings wat deur die nuwe kurrikulum vereis word, suksesvol te implementeer.					
g. Daar is voldoende hulpbronne beskikbaar (behalwe dosente) om die nuwe kurrikulum suksesvol te implementeer.					
h. Ek beskik oor voldoende kennis oor die onderrigmetodes wat deur die nuwe kurrikulum vereis word, om my deel van die nuwe kurrikulum suksesvol te implementeer.					
i. Die opleiding van mediese studente in die huidige kurrikulum kan nie betekenisvol verbeter word nie.					
j. Die nuwe kurrikulum word op ons afgedwing.					
k. Ek h*et al.* geleentheid gehad om my mening oor die nuwe kurrikulum te lig.					
l. Die menings van dosente oor die nuwe kurrikulum word by die beplanning daarvan in ag geneem.					
m. Dit is belangriker op hierdie stadium dat die afname in navorsingsuitsette aan die Fakulteit aangespreek word as enige probleme met onderrig.					
n. Gegradueerdes van hierdie Fakulteit voel dat verskillende aspekte van die voorgraadse mediese opleiding verbeter kan word.					
o. Die nuwe kurrikulum ondermyn my reg om besluite te neem oor die onderrig en evaluering van studente in my vakgebied.					
p. My integriteit as professionele persoon word aangetas in die nuwe kurrikulum deurdat ek deels van my verantwoordelikheid om besluite te neem oor die onderrig en evaluering van studente, onthef word.					
q. Die nuwe kurrikulum gaan nie in die praktyk werk nie.					
r. Die nuwe kurrikulum bied dosente meer geleenthede om nuwe onderrigstrategieë te bemeester en te gebruik as die ou kurrikulum.					
s. Die nuwe kurrikulum gaan maak dat dosente te veel tyd aan onderrig moet spandeer in vergelyking met hul ander verpligtinge.					

19. Gee asseblief 'n skatting (%) van hoe u tyd oor die loop van 'n jaar tipies verdeel word tussen die volgende aktiwiteite:	Onderrig (voorgraads)	%
	Onderrig (nagraads)	%
	Navorsing (insl. administrasie van navorsing)	%
	Administrasie (van kursusse of departement/eenheid)	%
	Kliniese werk (indien u 'n M.B.,Ch.B. of M.Med. het)	%

20. Wat beïnvloed hoe u u tyd tussen hierdie aktiwiteite indeel? (Gebruik syfers van 1 [meeste invloed] tot 5 [minste invloed] om die relatiewe belang van elk aan te dui)**.**	Vereistes van werkgewer	
	Vereistes van departementshoof	
	Persoonlike belangstelling	
	Om in loopbaan te vorder	
	Ander (spesifiseer asb.)	

21. Is daar iets spesifiek waaroor u meer wil weet om u beter in staat te stel om die nuwe kurrikulum te implementeer?

_____

_____

_____

_____

_____

_____

_____

22. Het u enige kommentaar, positief of negatief, oor die nuwe kurrikulum?

_____

_____

_____

_____

_____

_____

_____

Baie dankie vir u tyd! Stuur asseblief die voltooide vraelys terug aan my in die vooraf-geadreseerde koevert wat hierby ingesluit was.

APPENDIX E:

Questionnaire used to survey levels of work-related stress amongst staff of an academic department

Ondersoek na oorsake en vlakke van stres by die werk

Beste kollega

Ek wil graag u hulp vra met 'n ondersoek wat ek as deel van my MPhil(Hoër Onderwys) moet doen. Dit behels 'n ondersoek na oorsake en vlakke van stres onder lede van 'n akademiese departement. Uit die aard van die saak, is dit vir my die maklikste om die ondersoek in hierdie departement uit te voer, die wat ek u hulp vra.

Ek sal dit dus baie waardeer indien u 'n paar minute van u tyd sal afstaan om hierdie vraelys te voltooi. (Dit behoort so tussen 5 en 10 minute te neem om die vraelys te voltooi). Dit is anoniem, en die vrae is so opgestel dat niemand van die paar demografiese besonderhede wat gevra word, geïdentifiseer sal kan word nie. (Die stafiekode onder aan elke bladsy is net die ondersoek nommer wat benodig word om die data te skandeer - dis dieselfde op elke vraelys).

Indien u bereid is om die vraelys te voltooi, plaas asseblief die voltooide vraelys in my posvakkie voor die einde van die week.

Indien u nie hierdie vraelys wil voltooi nie, sal ek bly wees indien u die toepaslike blokkie onder aan hierdie bladsy sal merk en die vorm sommer nou in my posvakkie sal plaas.

By voorbaat dankie vir u hulp.

François

Ek verkies om nie hierdie vraelys te voltooi nie ☐

Survey : 15033

Mei 2000

Navorsing dui daarop dat geslag en werkservaring 'n impak het op die soort en omvang stres wat 'n persoon ervaar.

Beantwoord asseblief elk van die volgende vrae deur om 'n kruisie in die toepaslike blokkie(s) te trek:

1. Geslag:
Vrou: ☐
Man: ☐

2. Hoe lank werk u al?
2 jaar of minder: ☐
Tussen 2 en 5 jaar: ☐
5 jaar of meer: ☐

3. Watter van die volgende moet u <u>as deel van u werk</u> doen?
Onderrig: ☐
Navorsing: ☐
Administrasie: ☐
Diens in die gemeenskap: ☐

Navorsing dui daarop dat die volgende van die algemeenste bronne van stres is wat mense in 'n akademiese omgewing ervaar.

Wat is die <u>meeste</u> stres wat elk van die volgende aspekte van u werk op enige stadium oor die <u>afgelope 3 maande</u> vir u veroorsaak het?

Dui asseblief u antwoord aan deur om 'n VERTIKALE STREPIE op die skaal regs van die vraag te trek. Plaas die strepie op die posisie op die skaal (insluitende die uiterstes) wat u voel met die toepaslike vlak van stres ooreenstem.

	HET GEEN STRES VEROORSAAK NIE	KON NIE MEER STRES VEROORSAAK HET NIE
4. Onvoldoende tyd gedurende 'n gewone werksdag om die werk wat u <u>moet</u> doen, af te handel.	⊢+-+-+-+-+-⊣	
5. Onvoldoende tyd gedurende 'n gewone werksdag om die werk wat u graag <u>wil</u> doen, af te handel.	⊢+-+-+-+-+-⊣	
6. Te veel verskillende take waaraan u aandag moet gee.	⊢+-+-+-+-+-⊣	
7. 'n Gebrek aan tyd om die werk wat u moet doen, oordentlik te doen.	⊢+-+-+-+-+-⊣	
8. Onderbrekings weens telefoonoproepe of besoekers wat sonder 'n afspraak opdaag.	⊢+-+-+-+-+-⊣	
9. Om die eise van u navorsings- en onderrigpligte te probeer balanseer.	⊢+-+-+-+-+-⊣	
10. 'n Gebrek aan tyd om manuskripte vir publikasie voor te berei.	⊢+-+-+-+-+-⊣	
11. Die verkryging van voldoende fondse vir navorsing.	⊢+-+-+-+-+-⊣	
12. 'n Gebrek aan tyd om navorsing te doen.	⊢+-+-+-+-+-⊣	
13. 'n Gebrek aan tyd om by te bly met die jongste verwikkelinge in u terrein.	⊢+-+-+-+-+-⊣	
14. Onvoldoende fasiliteite vir navorsing.	⊢+-+-+-+-+-⊣	
15. Die impak van u werk op u persoonlike lewe.	⊢+-+-+-+-+-⊣	
16. Bywoning van vergaderings wat onnodig lank duur.	⊢+-+-+-+-+-⊣	
17. Bywoning van te veel vergaderings.	⊢+-+-+-+-+-⊣	
18. Onderrig van studente.	⊢+-+-+-+-+-⊣	
19. Onvoldoende tyd om voor te berei vir onderrig.	⊢+-+-+-+-+-⊣	

(voort ... Wat is die <u>meeste</u> stres wat elk van die volgende aspekte van u werk op enige stadium oor die <u>afgelope 3 maande</u> vir u veroorsaak het?)

	HET GEEN STRES VEROORSAAK NIE	KON NIE MEER STRES VEROORSAAK HET NIE
20. Besluitneming deur ander mense oor aspekte u werk.		
21. Om nie betrokke te wees by besluitneming wat op u werk 'n impak het nie.		
22. Om werk te moet doen waarin u nie belangstel nie.		
23. Onduidelikheid betreffende die verantwoordelikhede wat u by die werk dra.		
24. Onvoldoende gesag om u pligte na te kom.		
25. Wrywing in verhoudings met ander mense by die werk.		
26. Onvoldoende finansiële beloning vir die werk wat u verrig.		
27. Onvoldoende erkenning vir die werk wat u verrig.		
28. Onduidelikheid rondom kriteria waarvolgens u navorsing evalueer word tydens prestasiebeoordeling.		
29. Onduidelikheid rondom kriteria waarvolgens u onderrig evalueer word tydens prestasiebeoordeling.		
30. Evaluering van u onderrig deur studente.		
31. 'n Gebrek aan vordering in u loopbaan.		
32. Navorsing wat nie so goed is soos wat u dit graag wil hê nie.		
33. Onderrig wat nie so goed is soos wat u dit graag wil hê nie.		
34. Gebrek aan leiding van die mense onder wie u werk.		
35. Onrealistiese verwagtinge van ander mense ten opsigte van u navorsing.		
36. Onrealistiese verwagtinge van ander mense ten opsigte van u onderrig.		
37. Gebrek aan bystand van kollegas wanneer u probleme met u werk ervaar.		