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PROBLEMS ASSOCIATED WITH THE INTEGRATION OF THEORY AND PRACTICE IN CLINICAL ORTHOPTICS

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Abstract
Some of the college and clinical experiences which are used to help the student gain the best possible professional behaviour are considered. The discussion looks at the individual students' experiences and performance in the classroom, the clinic and during assessment. Some of the current problems are identified and the potential solutions described.

Key words
Teaching methods, comprehension and assimilation of material, application of material, professional competence.

Modification of teaching methods over the last four years has generally improved the students' performance, although it continues to indicate difficulty applying theory to practice.

The following discussion looks at five areas in which problems occur:

I The teaching of the individual student in the classroom
II Control of individual student experience in clinical education
III Nature and level of graduate behaviour
IV Communication to clinical teachers of the standard of course content
V Assessment of student clinical performance

Teaching of the Individual Student in the Classroom

Two problems arise in this area:

1. Comprehension and assimilation of concepts into the students' existing knowledge framework. These concepts include phenomena not immediately demonstrable in practice and the total management of patients whose treatment continues for longer than the scheduled period of attendance at one clinic.

Depending on each students' previous clinical performance and comprehension of basic studies the new material will be understood at different levels. The initial problem is to detect the individual student who does not understand the material and to assist his/her comprehension. Few are willing to admit that a concept was not understood, particularly when in a group, and deficiencies may be overlooked until revealed at a major assessment, where the question is one of pass or fail.

2. Application of theory to the patient. One of the aims of presenting theory is to increase the breadth and depth of the individual's knowledge in as short a time as possible. The student has to be prepared to apply his theoretical knowledge to the patient and then to assess the results so that in the light of experience he can develop his own ideas. The relationship of theory to the case and the case to theory is poorly understood and forms a basic problem.

To assist comprehension of concepts, variety in the method of presentation of material is used and information is related as much as possible to practical situations.

The methods include small group tutorials, assessments, academic practical tutorials, progressive case studies, simulation and audio-visual sequences. The first three methods, by various approaches, enable feedback to the student of the development of his academic abilities. Initially this involves the ability to recall knowledge by assessments such as viva voce and multiple choice questions. As the training progresses the student is encouraged to apply, assess and analyse informa-

tion, through case studies in both clinical and discussion sessions. These methods also provide the lecturer with information on individual student comprehension and performance.

Progressive case studies have been introduced to help to give the student the concept of total case management. The student, through personal contact and case history information follows and reports the progress of a treatment programme. This has been particularly useful where student participation is limited due to risk of injury to the patient, e.g. tonometry and contact lens work.

Simulation has been more recently introduced and by presenting a less stressful ordeal is playing an increasingly useful role in training. In the initial stages of training devices which simulate basic conditions (e.g. cover test doll) are used and to reinforce experience fellow students, staff and willing assistants are used to simulate patients.

Games are used for more complex conditions (which cannot be simulated by unaffected patients). The "patient" is programmed to make specific responses as the student verbally carries out the test sequence. A pre-arranged scoring system has marks assigned for such things as sequencing of tests, methodology and interpretation of results.

Control of individual student experience in Clinical Education

To ensure that the graduate will adapt his techniques to a variety of human conditions, it is essential that he demonstrates proficiency in basic skills at an undergraduate level. His performance will depend on background training and on experience in the clinics. It is the latter which, in my experience, requires control.

Three problems arise in this area, the first being that clinics are predominantly non-specialist and can rarely be controlled to ensure that specific conditions will be available when required or when most applicable to theoretical presentation. Thus students can miss essential experiences, unless special arrangements are made. Such monitoring is complex and binding for staff and students.

The second problem occurs where, through the generosity of the practitioner, students participate in regular practice. Often there are too many patients to allow any discussion in depth. Potentially valuable experiences pass unexplained, and recently introduced ideas cannot be reinforced.

The third problem is the limited availability of clinics. Placements may be fragmentory, resulting in lack of continuity of tuition for the students.

Methods used to overcome these problems include rotation of students, log books, work books, videos, case discussions and structured practical tutorials.

Of these, most orthoptists are familiar with the rotation of students with the associated advantages, and clinic books which now record in more detail the kind of clinical experience gained so that further placements can be arranged appropriately.

Work books and progressive case studies are also collected. These are assessable and require experiences in essential areas before they can be completed and marked according to acceptable standards. Additionally, case studies are carried out in small groups to encourage the development of logical thought processes to enable adaptability in clinical situations.

Structured practical tutorials and rotation of students with a limited patient load per session are a recent addition, thereby allowing full discussion of all aspects of patient management.

Videos are also used to ensure essential ocular conditions have at least been observed.

Nature and level of graduate behaviour

Undergraduate studies are designed to develop a competent beginning practitioner.

The problem is how to assist the students to develop professional behaviour, so that on graduation they can demonstrate a mature approach to care of the patient.

Methods used to try to achieve this aim include "problem-solving" exercises, assignments and research papers and seminars.

In "problem-solving" exercises, case studies, simulation and patient examination are used to present limited informaiton which the student is led to think through in order to reach a diagnosis, discuss further possible tests which could be used with the likely results, and to outline the most appropriate plan for any given patient.

Assignments and research papers are set on topics developed to simulate logical collection and sorting of data, with discussion of results, and statement of ultimate conclusions.

Seminars are also set with the presentation guided so that the student collects and presents new information to colleagues in a way which can be easily assimilated and promotes group discussion.

Communication to clinical teachers of the standard of course content

Considerable time and effort is involved in pre-

senting lecture material so that it can be readily applied in clinical practice. Again and again we find that the opportunity to apply it has not been given, and the problem arises as to how best to communicate to clinical teachers the material which has recently been covered in lectures to enable maximal reinforcement to students.

The ideal solution for this problem would be practical sessions supervised by the lecturer or attendance at lectures by clinical teachers, however, both situations are highly impractical due to other commitments.

More feasible solutions lie in methods such as forwarding handouts to clinical teachers so that, at their leisure they can assimilate the material. This tends to be tedious and does not fully explain all the material.

Another possibility at present being tried involves the circulation of the objectives of each lecture with the inclusion of limited added information to inform and control the level of expectation for each year.

Meetings and workshops are also organised for clinical teachers where lecture content can be discussed to enable additional areas of communication though these do hold some limitations.

Assessment of student clinical performance

Assessment, while it produces dread in both examiner and student, has some valuable and positive aspects. For the examiner these are identification of areas of poor comprehension and students with sub standard performance. To the student, on the other hand, it provides a powerful stimulus to pull information together into a total concept and to gain feedback on their personal competence level.

There are however, problems associated with assessment, such as stress, which affect students' performances, particularly if they are shy or lack confidence and may also be aggravated by time constraints.

Additionally, lack of objectivity in assessment can arise because the examiner may vary from the student in their value judgements due to differences in experience and academic background, the personality of the examiner and student may be antagonistic, the standard of previous student performance may influence expectations and marks, e.g. "star student" and in the more complex areas variability in patient personality, condition variety and complexity can occur. Regardless of student capability, the examination can be straightforward or very complicated.

To overcome stress, assessments can be organised so that they cover a variety of tasks including the regular form of examination of patients and written submission, both of which conform to established objectives for assessment of the topic. Assessment by regular clinical teachers incorporated into a regular clinical session where relationships and patterns of practice are familiar and thus less threatening, can also help. As well, the format of timed examination can be organised to allow analysis of performance followed by discussion to clarify areas of discrepancy and omissions.

To assist objectivity in basic areas, assessments can be organised which use simulated patients. This removes a considerable amount of variability between patients. However, simulation within complex areas makes it difficult to retain credibility. Additionally the objectives of the examination identify the components considered necessary to produce clinical competence so that a marking plan can be stated with its appropriate loading.

Finally, the averaging of multiple assessments with several examiners can reduce the effects of examiner subjectivity.

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