

The Application and Development of the Objective Structured Practical Examination in Evaluating Physiotherapy Students' Performance at the University of Cape Town

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SUMMARY

The purpose of this paper is to present the development and application of the Objective Structured Practical Examination (OSPE) in evaluating physiotherapy students' practical performance. This is discussed in terms of station allocation, the circuit of tests and the method of evaluating these tasks. The effects on teaching and examining practical skills are analysed. Recommendations are made for implementation of the system. The goals of greater objectivity and efficiency in examining practical skills seem to be achieved by using OSPE, but these have as yet not been validated scientifically.

OPSOMMING

Die doel van hierdie referaat is om die ontwikkeling en toediening van die Objektiewe Gestruktureerde Praktiese Eksamen (OSPE) voor te stel in die evaluasie van die praktiese vertoning van fisioterapie studente. Dit word bespreek deur middel van stasie aanwysing, die omtrek van toetse en die metode van evaluering van hierdie take. Die uitwerking op die onderwys en eksaminering van praktiese bekwaamhede word ontleed. Voorstelle word gemaak vir die implementering van die stelsel. Die doelwitte van groter objektiwiteit en nuttigheid by die eksaminasie van praktiese bekwaamheid word blykbaar bereik deur die gebruik van OSPE, maar is tot nog toe nie wetenskaplik bekragtig nie.

Objective structured practical examination (OSPE) originates from the Objective Structured Clinical Examination (OSCE)^{1,2} which was introduced during a visit to South Africa in 1981 by Professor Harden, Head of the Medical Education Unit at the University of Dundee. The need for more objectivity^{2,3,4} and efficiency in examining students was highlighted, and OSPE appears to offer a practical solution to these needs.

OSPE AT UCT

In 1982 the Department of Physiotherapy at UCT introduced OSPE as part of the examination system. It attempts to evaluate practical or technical skills rather than the application of skills to specific patients. The latter would constitute clinical skills. Students of other years are used as "models" to whom the examinees apply their technical skills.

DESCRIPTION

The OSPE consists of a circuit of stations much like the idea of a circuit of exercises in circuit training. At each station the student is required to perform a specific task in five minutes. A gong goes and the students move to the next station and read the next task for one minute. Another gong goes and the students perform

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the task for five minutes and so on until all the tasks have been performed by each student.

At UCT a pragmatic approach is being used to develop a working model of OSPE in order to suit the particular departmental needs. This model must be considered as being in the experimental stage.

ALLOCATION OF STATIONS

The content of the tasks is subject-based and the allocation of stations was originally done on the basis of the number of hours for which each subject was taught during the year.

The underlying assumption was that the number of hours indicated the importance of the subject. This has been rejected and the stations are now allocated according to the syllabus. Each syllabus is given fair representation. (A syllabus includes one or more subjects — see Table). The organisation of time and space limits the number of stations to ten. OSPE is held three times yearly in June, September and November. The number of stations per year indicated in the Table is distributed over the three examinations according to the amount of work covered by the time they occur.

TASKS

Examples of the tasks are the following:

“Demonstrate the application of ultrasound to the medial aspect of the knee using the dose 0,25 watts/cm² for one minute”.

“Demonstrate the vertebral artery insufficiency tests and then demonstrate cervical rotation to the right grade II (Maitland) for 30 seconds”.

Each task is evaluated by means of a checklist. The checklist consists of a breakdown of the task into the component skills. For example task one above, examining the technique of ultrasound, could be evaluated in terms of:

1. The preparation of the model
2. Testing the machine
3. Maintenance of the machine’s head in contact with the (student’s) model’s skin.

4. The speed with which the head is moved and
5. Accuracy of the dose applied

THE CHECKLIST

The checklist is quantified by a scoring system for each of the components, reflecting the requirements of execution, as well as the quality of the execution of the skills where appropriate. Again, using the task on ultrasound as an example, the checklist could take the following form:

1. Preparation of model	0	1	2	3
2. Testing the machine	0	1		
3. Maintenance of the head in contract with model’s skin	0	1	2	3
4. The speed of the technique	0	1	2	
5. Accuracy of the dose	0	1		

(0 and 1 indicate “not done” or “done” respectively while additional marks are scored for quality of the execution in some skills).

Subminimum scores or penalties can be built into the checklist. In the checklist used above, penalties for omitting the machine test and inaccuracy of the dose could be minus three for each. This would ensure that the student does not pass the station if these imperative precautions are not performed.

Compiling checklists is time-consuming and originally the checklist of skills was short and general. The need for more detail became obvious and more specific checklists were compiled. This produced some checklists of the opposite extreme in which up to fifty items were expected to be examined in five minutes. This was unacceptable and accentuated the need for a more detailed analysis of the skills to be evaluated, as well as setting more specific goals as to the type of skills that are required for testing.

THE ANALYSIS OF TASKS

Analysing the tasks into component skills to be tested, enables one to control the emphasis^{1,2} on the skills to be evaluated and a greater cross section of skills can thus be tested. The increased sophistication

Table.

	Technique IB Year I	Technique IIB Year II	Technique IIIB Year 3	Total per Syllabus
<i>Syllabus one</i>				17
Movement Technique	6	3	—	
Rehabilitation	5	—	—	
Splints and bandaging	3	—	—	
<i>Syllabus two</i>				11
Massage	5	6	—	
<i>Syllabus three</i>				16
Passive Movement	5	—	—	
Mobilisations	—	5	6	
<i>Syllabus four</i>				15
Electrotherapy	—	7	8	
<i>Syllabus five</i>				16
Basic Facilitations	—	3	5	
PNF	—	3	5	

of physiotherapy techniques and the vast increase in syllabus content demands a more skill-based method of teaching and examining. In satisfying these demands the emphasis can be placed on principles of technique when examining practical skills. OSPE appears to provide a means of achieving these objectives.

THE EFFECT ON TEACHING

The need to define skills in more detail inherent in OSPE could result in clearer teaching objectives and more sequentially structured teaching process. The results of OSPE also provide a means of evaluating teaching efficiency and identifying specific instruction and learning problems. The validity of, "are we teaching what we want to teach" can be evaluated by assessing the consistency of results obtained by the students in each task.

Poor performance of an entire class in any specific task could imply either teacher or learning problems, scoring problems, or question misinterpretation and the lecturer could then investigate the underlying reasons more easily. OSPE identifies weaknesses in particular students' performance of basic technical principles and specific and direct feed-back to students is possible.^{1,4}

COMPARTMENTALISATION

OSPE does, however, have its problems. It compartmentalises² aspects of treatment, it removes the student from the real situation and it inhibits a holistic view of patient management. In redressing the problem of compartmentalisation, UCT will attempt in the future to organise the OSPE for each group of students around a theme. For example the technical skills examined will be applied to a specific part of the body so that as far as possible continuity in treatment is achieved. Furthermore, OSPE is complemented by regular clinical testing and a final clinical examination. In these tests and examinations, the students' ability to approach the patient as a whole is evaluated by considering patient assessment, planning the treatment, execution of technique, interpersonal relationships and patient education.^{1,4}

EFFICIENCY

The entire process is a considerable undertaking and responsibility for the staff member co-ordinating^{2,3} and organising OSPE, and the compiling of checklists is time-consuming for all involved. Once a bank of OSPE questions and checklists has been built up and a more constant *modus operandi* for the execution of OSPE is established, the efficiency of this part of OSPE will improve.

Although close attention to a number of students performing the same task during the examination is demanding and tiring for the examiner², OSPE enables a large number of students to be examined in a representative cross section of skills in one day. This is obviously preferable to the former examination system which would require days of examining for the same number of students. With the increase in the number of

students entering physiotherapy school it is imperative to use a more efficient method of testing skills.

For this reason, in 1984 UCT experimented with a duplicate circuit system in which two identical circuits of stations were set up in adjoining rooms. Both circuits had eight to ten stations. This system enables up to forty students to be examined in one morning i.e. in two rounds, each round examining up to twenty students in up to ten tasks and the whole process taking approximately two and a half hours. The two groups of students are prevented from contacting one another by the second group arriving before the end of round one and being isolated in a separate room.

PROBLEMS

Two problems arose from the above system. The first was the consistency of scoring by examiners assessing the same tasks in different circuits. This was partially solved by making available the checklist to the examiners a few days prior to the examination in order that they familiarise themselves with the items and clarify any problems. Rehearsal time for examiner and model on the day of the examination was also increased for the same reasons.

The second problem was the availability of 16-20 examiners per OSPE. The solution to this may lie in the work of Hilary Wadsworth.⁵ She concludes on the basis of her study that final year students, using detailed checklists, will make the same assessment of performance of a task as a lecturer. This is achieved only by intensive preparation of the student assessor in terms of observational and affective skill training. This would be very time consuming initially, but as a working model becomes established, so the efficiency will improve and the system prove worthwhile.

RECOMMENDATIONS

The authors make the following recommendations for departments hoping to include OSPE into their system of evaluation of students practical performance:

1. Set very specific goals for the system used according to departmental needs and resources.
2. Ascertain as soon as possible whether these goals are being met.
3. Evaluate skills tested in the clinical situation so as best to complement the practical skills tested by OSPE.
4. Emphasise the preparation of assessors of performance and the models involved in the examination.

CONCLUSION

The goals of objectivity and efficiency in OSPE are slowly being met but are yet to be scientifically validated. Specific goals as to the emphasis of skills tested in OSPE are in the process of being set. OSPE seems best suited to test psychomotor skills. The ability of the student to treat the patient as a whole and progress treatment appropriately is best evaluated in the clinical situation. As in-depth evaluation of the skills required of students at different levels of competence will enhance

the value of OSPE as a method of evaluating psychomotor skills and as a complement to clinical performance testing.

However problematic OSPE may seem to be, its potential to satisfy the major examination goals of objectivity and efficiency is immense and warrants the time and energy spent on perfecting the system.

References

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