Emotion and concealed motivation in the clinical interview

Peripheral cannulation: what's the benefit and what's important?
Adapting clinical skills training to an Arabian Gulf setting
Role of clinical nurse educators in medical education
Simulation learning in health care
Acknowledgements

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Amidst the fast paced achievements in international healthcare and education, it is important not to forget what clinical skills mean in reality for our patients – clinical skills change lives.

After having initiated the charitable society Willing and Abel in 2008, many health care professionals have had the pleasure of using their specialised and expert clinical skills to help children of developing nations requiring specialist surgery. An example is 13 year old Regina who was born with a tumour fatally spreading across her face (congenital lymphangioma) – she successfully underwent major surgery at The Royal London Hospital (United Kingdom) in December 2010 and now continues to lead a normal life in Ghana, West Africa (www.bbctelevision.co.uk).

Such success exemplifies a fundamental strength of the clinical skills community in its ability to evolve and adapt to meet the challenges and expectations of a modern healthcare arena. Healthcare professionals need to have clinical skills training which will allow them to meet present and future challenges, which include an ageing population, multiple morbidities and increasing patient expectations.

There is no doubt that the International Journal of Clinical Skills provides an excellent forum for the global healthcare community to further clinical skills research, as well as advancing the training of students, academics and health professionals. I wish the International Journal of Clinical Skills continued success for its admirable work in this important field.

Dr. Abigail Boys MBBS MRCS (Eng)
Founder of Willing and Abel
www.willingandabel.org.uk
The use of the Direct Observation of Procedural Skills (DOPS) assessment tool in the clinical setting - the perceptions of students

Abstract

Background: Using work-place based assessment tools in the undergraduate medical curriculum presents a number of challenges. Firstly, given the increasing proportion of the curriculum spent in clinical attachments in the final years, it is essential that reliable evidence of student performance in the workplace is presented as part of the assessment process. Secondly, the number of students on clinical placements at any one time in the undergraduate programme presents a particular challenge in relation to the feasibility of carrying out so many workplace based assessments, using tools such as the Direct Observation of Procedural Skills (DOPS). This paper presents the results of a survey of student perceptions on the introduction of the DOPS as a workplace based assessment tool in their clinical attachments.

Methods: All final year medical students were surveyed while on clinical placements over a four month period in 2010. Using a Bristol Online Survey (BOS) a 10 item questionnaire was distributed to a final year cohort of 150 final year medical students.

Results: 58.7% (88 out of 150) of those surveyed completed the questionnaire. Over 88% of students reported the DOPS as being easy to administer and 76% identified its use in creating opportunities for feedback. Challenges include difficulty in integrating the workplace assessments into their clinical attachments (55%) and nearly 70% cited time constraints in relation to both assessment and feedback.

Conclusion: The survey identified the positive impact of using a workplace based assessment tool in clinical attachments, as perceived by undergraduate medical students, in terms of gaining both reliable evidence of performance and in providing feedback, but identified some real constraints.

Background

There is a concern that undergraduate students are seldom observed, assessed and given feedback during their workplace clinical attachments [1]. Traditionally the assessment of procedural skills has focussed on technical aspects [2] rather than taking cognisance of the impact of other factors, such as the context.

One of the challenges of assessing individual performance in the workplace is that even if patients have the same medical condition, the complexity of their care makes it difficult to compare performance. Work Based Assessment (WBA) is a form of authentic assessment testing performance in the real environment facing doctors in clinical practice, at Miller’s level of “does” relating to performance [3]. Miller’s pyramid has been used over the last twenty years as a framework for assessing clinical competence not performance. Performance is structured and continuous, unlike the opportunistic observations previously used to form judgement on competence. By using repeated assessments, an assessor has the opportunity to collect documentary evidence of
the progression of individual trainees. This evidence may then be used to identify “gaps” in practice which will allow the assessor and assesse to mutually plan individual development needs. Using a wide range of WBA tools helps to identify strengths and weaknesses in different areas of practice, such as technical skills, professional behaviour and team working.

The Royal College of Physicians (United Kingdom) developed the DOPS work based assessment tool which has been validated and found to be reliable with postgraduate trainees [4]. It provides a focussed observation or “snapshot” of a trainee undertaking a practical procedure in the workplace. The feature of Direct Observed Procedural Skills (DOPS), which is commonly cited as being responsible for its high educational value, is the opportunity it creates for focussed and relevant feedback from more experienced practitioners. It requires the assessor to:

1. Directly observe the assesse undertaking the procedure
2. Make judgements about specific components of the procedure
3. Grade the assesse’s performance

DOPS have become part of the portfolio of evidence required of Foundation Year doctors as part of their two year programme prior to specialisation. Doctors have reported it as being fair and having a good predictive quality. However, there is little evidence based research on the educational impact of DOPS or its acceptability at undergraduate level [5]. It has been suggested [6] that observing, assessing and providing feedback to students will enhance the quality of the skills delivered. This would have a positive impact on patients’ clinical care. Race [7] has examined the rationale behind innovation and assessment and stated that any new form of assessment should be questioned i.e. does it increase learning? Is it more efficient? Can the new method make assessment more valid? Innovative assessment techniques can be introduced to reduce the assessment load, to offer enhanced feedback. Indeed, they can provide a better alignment between teaching, assessment and learning outcomes. However, the introduction of such assessment methods is not simply about choosing a different way of doing things or saving time, instead the driver must be because the particular innovation is best suited to what students are being asked to learn.

**Objective**

DOPS is a method that has been designed specifically for the assessment of practical skills. The aim of this study was to explore the perceptions of final year medical students on the introduction of the DOPS assessment tool in their clinical attachments.

**Methods**

**Development of the DOPS process for the undergraduate programme**

An assessor observes a student performing a practical procedure from start to finish, and scores the student against pre-defined criterion on a rating score of 0-9 (Figure 1). The assessment should take place during the normal course of a student’s work (i.e. their actual practice is being observed and assessed). The degree of difficulty and level of competence expected will vary with the experience of the student. If a student scores 3 or less (unsatisfactory), specific reasons should be recorded on the form.

A generic version of the DOPS assessment form (Figure 2, page 108) was adapted which students could access and download from the University’s clinical skills website, to use on their clinical attachments. These were then included in their final year portfolio as evidence of the student’s practice.

**Selection of the DOPS procedures**

DOPS are not designed to test the person, but rather provide the opportunity for that person to ensure that a particular skill is performed correctly according to agreed guidelines using an agreed checklist in the workplace setting. The procedures selected are from those outlined as core competencies from the UK General Medical Council’s document ‘Tomorrow’s Doctors’ [8].

**The selection of participants**

During a four month period, whilst final year medical students were on their clinical attachments, the final year cohort of students (n = 150) were invited on a voluntary basis to participate in an anonymous online survey relating to their perceptions of DOPS.

**Designing, piloting and distributing the survey**

During the clinical attachments in the final year at the University of Dundee (UK) the students are often geographically dispersed so an online survey was the most practical method of surveying all students within an agreed time frame. The Bristol Online Survey (BOS) tool was used, in order to design and pilot the survey questionnaire. It was sent to peer lecturers in addition to e-learning advisors. The feedback received was useful for finalizing the survey questionnaire. Scales measuring agreement with attitudinal items were written using a five-point Likert scale format (strongly agree, agree, neither, disagree and strongly disagree).

The survey was then distributed via the web resource www.surveybris.ac.uk along with a covering letter outlining the aims of the research and to ensure anonymity and confidentiality. The survey was hosted on “Blackboard” the University of Dundee’s main Visual Learning Environment (VLE). The survey link was e-mailed to final year medical students on clinical placement.
and they were invited by e-mail to complete the survey questionnaire with their consent.

Respondents were asked how much they agree with a series of ten statements relating to the usability of DOPS and more specifically how it measures performance, provides immediate feedback and the potential to indicate students’ developmental needs.

Data collection involved an e-mail solicitation containing a link to BOS Survey. One reminder was sent out. Frequencies and summary statistics were calculated for all variables and results presented using valid percentages. Data collection occurred between February and June 2010. The data were analysed using SPSS Statistics 17.00.

Formal ethical approval for this study was obtained from the University of Dundee Research Ethics Committee (UREC).

Results

The study design employed an anonymous online questionnaire (Figure 3) which was published on the Bristol Online Survey (BOS). Overall 88 out of 150 students responded to all statements on the survey, giving a response of 58.7%. The responses are presented in (Table 1).

Figure 3: Online questionnaire statements (rated on a five-point Likert scale from “strongly agree” to “strongly disagree”)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The DOPS form is simple to use</td>
<td>18.2%</td>
<td>70.5%</td>
<td>4.5%</td>
<td>4.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>2. The DOPS form is easy for examiners or assessors to administer</td>
<td>12.5%</td>
<td>71.6%</td>
<td>6.8%</td>
<td>6.8%</td>
<td>2.3%</td>
</tr>
<tr>
<td>3. DOPS can be integrated into the fabric of the working day or normal routine</td>
<td>3.4%</td>
<td>31.8%</td>
<td>10.2%</td>
<td>35.2%</td>
<td>19.3%</td>
</tr>
<tr>
<td>4. There is sufficient time for supervisors to observe medical students performing skills using the DOPS form</td>
<td>2.3%</td>
<td>17.0%</td>
<td>11.4%</td>
<td>45.5%</td>
<td>23.9%</td>
</tr>
<tr>
<td>5. The DOPS rating scale defines clearly the level of performance expected of a final year medical student</td>
<td>4.5%</td>
<td>56.8%</td>
<td>11.4%</td>
<td>21.6%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

(Table 1 continued over page)
6. DOPS allows for variation in the assessment of procedural skills from placement to placement:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>4.5%</td>
<td>58.0%</td>
<td>20.5%</td>
<td>10.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td>58.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
</tbody>
</table>

7. Time should be written into the job plans of clinical teachers / assessors to facilitate DOPS assessments:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>42.0%</td>
<td>40.9%</td>
<td>6.8%</td>
<td>6.8%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.4%</td>
</tr>
</tbody>
</table>

8. DOPS creates an opportunity for pertinent feedback to a medical student:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>17.0%</td>
<td>59.1%</td>
<td>11.4%</td>
<td>6.8%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7%</td>
</tr>
</tbody>
</table>

9. Immediate feedback provided by DOPS form is helpful to student development:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>20.5%</td>
<td>59.1%</td>
<td>13.6%</td>
<td>4.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7%</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.3%</td>
</tr>
</tbody>
</table>

10. DOPS identifies the developmental needs of a medical student having carried out a procedural skill:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>12.5%</td>
<td>64.8%</td>
<td>10.2%</td>
<td>8.0%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7%</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.7%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.5%</td>
</tr>
</tbody>
</table>

Experience with DOPS

88.7% thought DOPS was easy to use and administer. Students were also very positive about the opportunity that DOPS creates for feedback to a medical student (76.1%). An overwhelming majority (79.6%) agreed that this immediate feedback is helpful to their development. Students also supported the notion (77.3%) that DOPS identifies the developmental needs of a medical student to carry out a procedural skill.

Negative results

54.5% of students considered there were difficulties integrating DOPS into the normal working day. 69.4% of students reported there was insufficient time for supervisors to evaluate and provide feedback. 82.9% of students identified that time should be written into the job plans of assessors to facilitate DOPS and provide feedback. There was also a high variance split in relation to the integration of DOPS in the clinical setting with (35.2%) of respondents agreeing that DOPS could be integrated in contrast with (54.5%) who disagreed.

Discussion

The first key observation is that the large majority of the respondents valued immediate feedback and perceived the DOPS as being fit for purpose, but identified the need for protected time for assessors to be able to undertake the assessments in order to maximise their impact at undergraduate level. This concurs with the literature which suggests assessment based on direct observation should be an essential component of outcomes-based education and certification [9, 10]. The development of expertise depends on accurate and detailed assessment and feedback [11]. Research indicates that effective learning depends strongly on active involvement of students and deliberate attention to cognitive processes underlying task performance. In the clinical setting, however, there is no guarantee that every student will have a uniform experience and learn all the necessary skills. In fact, whilst workplace based assessment is the most authentic method of testing performance, the tools available are limited to postgraduate assessment [12, 13]. Indeed there may be a role for simulation in enhancing the evidence of these tools at undergraduate level given the current pressures in the real workplace.

The international movement in quality improvement and patient safety has been increasing use of simulation for performance assessment, led by anaesthesiology [14, 15]. There is, however, increasing use of work-based assessment tools in other health care simulation contexts [16].

Developing performance assessments using simulation may be the most defensible method of ensuring reliability and validity for senior students prior to graduation. DOPS has previously only been implemented at postgraduate level in medicine and has been designed specifically for the assessment of procedural skills, yet it may also have a useful role in enhancing the reliability and competent execution of medical undergraduate procedural skills. The research literature on formative assessment and feedback suggests that it is a powerful means for changing the behaviour of students and trainees, and there is a consensus that developing tools to evaluate accurately the clinical competence of a student and to direct his/her learning appropriately is a worthwhile endeavour [17, 18, 19].

Educators need instruments to document the competence of individual students and trainees and to evaluate the programmatic impact of new curricula. Furthermore, when evaluating such tools and strategies it is essential to look critically for evidence related to the three fundamental properties of content validity, reliability and practicality. The assessment of procedural skills, as opposed to more general
skills, is more effective when the observations are structured and the tasks are broken down into their components [20]. The DOPS have the advantage of a short time commitment for the procedural observation itself, but in this study students perceived that there was still insufficient time for their assessors suggesting the numbers of students or the lack of assessors or the lack of protected time to carry out these assessments in the workplace, may be responsible factors.

Perhaps the strongest area of potential pedagogic advantage with the DOPS tool is in the provision of rapid feedback in the form of marks and comments. While students’ exposure to a required experience does not in itself assess clinical competency, documenting and monitoring those experiences remains a major component in the education and accreditation process. Further studies on the validity and reliability of DOPS in this and simulated contexts, need to be conducted.

**Future recommendations**

Further research in the use of DOPS assessment is warranted, i.e. exploring the relationship between performance of clinical procedural skills in real and simulated settings, as well as improving the quality and speed of feedback to clinicians. It would also be useful to ascertain the opinion of non-responders. Time and integration challenges to be addressed include, that:

- It may be that DOPS will not be possible over a wide range of skills unless they are programmed events
- Some procedures are not frequently required, so opportunities to observe the skill are difficult to find
- When an opportunity might arise it may not be convenient for the assessor to make themselves available at short notice and sometimes such procedures are outside of normal working hours, when assessors may not be present
- Some thought must be given to the coordination of assessor and trainee time
- Setting aside a regular observation period is required
- Some form of locally organized timetabling of DOPS may be a more efficient option

**Conclusion**

This study explored students’ perceptions on the use of the Direct Observation of Procedural Skills (DOPS) assessment during clinical attachments. Although a relatively small sample size, this study has clearly identified some of the real and perceived challenges from the students’ perspective.

Whilst students’ exposure to a required experience does not in itself assess clinical competency, documenting and monitoring those experiences remains a major component in the education and accreditation process. The DOPS assessment tool presents an opportunity to provide immediate and relevant feedback.

The provision of a more comprehensive assessment strategy for final year medical students, that covers practical procedural skills, has emerged as an important issue that will be key to ensuring quality, reliability and consistency of work based assessments for undergraduate students.

**Declarations**

The authors have no financial or other interests to declare in relation to this paper.

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**References**


