

Stress and Practical Assessments

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Introduction

Practical assessments have long been used in an academic Sports Science and Sports Therapy setting. Practical exams have the potential to assess many aspects of both theory and practice. They are especially important for assessing a student's competence in performance of a particular skill. In addition, practical exams are designed to recreate the stresses of a clinical environment (Rushforth, 2006). The practical exams for Sports Therapy also serve to satisfy the core competency requirements set by the course's governing body, The Society of Sports Therapists.

A typical arrangement for the practical assessment in the sports disciplines, and other professions allied to medicine, is a station with a treatment plinth, student model and two examiners. The average duration of the exams are 20 minutes and the student being assessed will typically read and interpret case notes before using clinical reasoning to perform a treatment. The assessment will normally conclude with a 5-minute viva during which the student is expected to justify their clinical decisions and show an academic understanding.

These exams have evolved over time and their development is underpinned by pedagogical theories and research. Students are required to make the journey from learning the "facts" during the early first-year modules to developing sound clinical reasoning skills by the higher level modules. These course objectives fit well with Bloom's Taxonomy where clinical reasoning is akin to the "synthesis" and "evaluation" levels of cognition (Fry et al., 2009).

In the context of educational research specifically related to clinical practice Miller's Triangle (Miller, 1990) is often referred to as a similar model of deeper learning. The triangle's base represents "knowing" how to do something and at the apex, the ability to "perform in practice" with understanding (Allery, 2009). Other benefits of structured practical exams include greater objectivity than in most observational style assessment of practice (Watson et al., 2002) and high levels of reliability and validity (Bartfay et al., 2004).

The practical assessments are deliberately designed to recreate the stress of a clinical setting. This appears to heighten the student's arousal levels with anecdotal reports that they create nervousness that can impact negatively on performance. In support of this, Hamilton (2005) likens the pressures of a clinical practical exam to an *American Idol* final (a reality television show to discover new solo singing talent). Conversely, the study by LeBlanc and Bandera (2007) showed that junior medical residents actually achieved higher scores for practical exams in comparison to a low stress control group. This study did find that anxiety scores were higher for the practical exam group but appeared to be unrelated to performance.

The well-established use of OSCE's (objective structured clinical examinations) offers further support for the template of practical exams. However, Downing and Haladyna (2004, p.330) point out that "OSCE's are simulations of the real world, but they are not the real world". This highlights that one can endeavour to recreate a "real" situation but it is unlikely to perfectly replicate the stresses involved. This is not to say that an environment that has an element of clinical realism has no benefits which brings us to the question: How stressed should a student be?

Stress

Stress is the non-specific response of the body to any demand placed upon it (Selye, 1975). It is the response to a stressor, be that physiological e.g. running a marathon or more psychological e.g. taking a practical assessment. For an individual to be successful it depends on how they manage the change (demands, challenges and threats).

There are two states of stress; *eustress*, which is positive stress (joy, happiness, motivation, confidence) and *distress* or negative stress (fear and worry) (Selye, 1956), each of them influencing both physical and mental performance. Early research focused on arousal and the drive theory (Hull, 1943; Spence, 1951) and suggested that the link between arousal and performance was positive and linear. However, this position gradually fell out of favour due to its lack of empirical support, the difficulty in testing the hypothesis, and the robust anecdotal evidence to the contrary. This allowed the inverted-U hypothesis (Yerkes and Dodson, 1908) to gain further support as the predominant framework. Yerkes and Dodson (1908) established that a curvilinear relationship between arousal and performance existed.

However, more recently, the multi-dimensional (Martens et al., 1990) and the catastrophe theory (Hardy, 1990) have become popular due to the consideration of psychological factors such as cognitive anxiety and self-confidence. This model suggests that an increase in cognitive anxiety can be detrimental to performance (Eysenck and Calvo, 1992). Conversely, an increase in self-confidence can override cognitive anxiety and result in an increased performance (Stankov and Crawford, 1997), be that either cognitive or physical. Penalties in a football match illustrate this

well, albeit anecdotally; players with improved confidence, perhaps due to practice, seem to counter the detrimental effects of cognitive anxiety better than individuals who are less well prepared.

Therefore, it is important to consider the build up to an exam. The student needs to have enough experience and confidence in order to minimise anxiety and allow the demands of the situation to increase arousal and enable the student to perform at the best of their ability. But, how do we achieve the optimal level of stress?

Strategies to optimise the level of stress

Hamilton (2005) suggests that the model of a “Grand Finale” should be avoided and that a series of practical assessments with a lower weighting would be fairer and invoke less distress. Although there are obvious logistic and resource implications, this would also serve to protect against one off performances that do not represent a student’s ability for whatever reason. Another avenue to consider is one that helps avoid unnecessary factors that increase stress such as deadline congestion. McVicar (2003) recommends that preventative measures are a key way to help optimise stress levels. Other strategies include self-induced relaxation techniques (Green et al., 1981) and also Cognitive Behavioural Training (a therapy that focuses on changing thoughts and beliefs in order to amend behaviours), which was shown to have significant reductions on stress levels for General Practitioners compared with a control group (Gardiner et al., 2004).

Peer review or assessment is another potential tool for controlling assessment stress levels. The inclusion of structured mock exams with peer review and feedback can help improve the transparency of practical assessments and the students’ understanding of the assessment process (Bloxham and Boyd, 2008). Furthermore, by providing regular practice and feedback there is the potential to increase self-confidence, reduce cognitive anxiety and thereby improve performance (Littlewood et al., 2005). Additionally, regular practice and feedback also provides students with much more opportunity to shine (Hamilton, 2005), thus boosting confidence and improving performance.

Reflection is another technique that can be employed to optimise the stress levels associated with a practical assessment, by increasing self-confidence. Undertaking reflection means finding a 'voice' by which to express thoughts, and that can increase confidence and self-awareness in ability (Hinett, 2002). One of the potential reasons for this is that reflection allows the student to analyse their own performance, highlight the positive and negative aspects, build on the best elements and devise strategies to address areas for improvement, and ultimately improve their performance. Therefore, the student can enter the assessment with higher levels of self-confidence, fewer negative thoughts and less cognitive anxiety. As a consequence of the process of reflection and associated techniques such as self- and

peer-assessment students improve confidence and sustain motivation for their studies by monitoring and taking responsibility for their own development (Hinett, 2002).

Finally, Shaikh et al. (2004) highlighted how stressful the medical environment can be both as a student and a graduate and recommended that recreation and opportunities for social interaction should be built into educational and work place settings. This was deemed a vital measure to offer relief from what can be a relentless career path, the effects of which can be seen during the early part of university life.

Future Research

Addressing issues of stress and arousal levels may be possible through reflective good practice on the part of tutors. This could entail modifications to a module structure and/or the incorporation of structured peer review/assessment and feedback, with a view to reducing anxiety levels and increase performance. Practice could be monitored with anxiety questionnaires and objective analysis of changes in students' grades.

In addition, research within the sports disciplines could focus on identifying physiological variables such as salivary cortisol, a reliable and stable stress hormone, in order to establish whether it correlates with exam performance. The monitoring of such markers during periods of assessments could be a powerful tool for the development of assessments that provide the optimal levels of arousal.

Conclusion

In conclusion, practical exams in fields such as Sports Therapy are a valid and reliable tool for assessing practical skills. It is necessary to have a certain level of stress in order to aid performance although too much can be debilitating. Potential strategies to combat excess stress involve preventative measures, regular practice with feedback and relaxation techniques.

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