AUSTRALASIAN JOURNAL OF **PARAMEDICINE**

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Education

Teaching students to think like a paramedic: Improving professional judgement through assessment conversations

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Abstract

Introduction

The ability to self-assess is essential to the practitioner who often works independently, and reflective practice is entrenched within the paramedic process of care. In order to develop these practices a paramedic student must be able to self-identify mistakes and learn from their errors. However, student assessment has traditionally focused heavily on outcomes, with errors being penalised. Justification for traditional approaches to assessment of paramedic students acknowledges the potentially catastrophic consequences associated with mistakes being repeated in the real world out-of-hospital setting. Responding to the challenge of balancing the reflective practice skills set with 'real world' implications of a paramedic's mistakes, an assessment process was re-designed. The 'Student-Tutor Consensus Assessment' (STCA) was created to rebalance assessment weighting from being exclusively outcomes focussed, and encourage students to apply similar critical lens to events as the paramedics who are assessing them. Parallel tutor and student self-assessments are applied to simulated scenarios, with scores awarded to criteria where consensus has been reached between student and tutor judgements.

Methods

Final year undergraduate Bachelor of Paramedic Science students enrolled in a capstone topic were invited to complete a paper-based questionnaire at the end of their studies. Questions sought student perceptions about the STCA features and effectiveness.

Results

There was a 95% response rate (n=90). Responses to the six different questions showed a range of 85.6–95.6% broad agreement regarding the value, effectiveness and suitability of the method.

Conclusion

The pilot STCA approach proved highly successful, with student endorsement for the continued and expanded application of this teaching approach.

Keywords:

student consensus; paramedic education; self-regulated learning; sustainable assessment; learning partnerships; formative assessment

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Introduction

Learning to become a paramedic involves more than simply being able to demonstrate practical task competence, it also requires development of judgement and the capacity to self-reflect. Mistakes when attempting tasks often provide some of the most valuable learning experiences. Despite this, most established assessment focuses on the assessment of learning to certify achievement, with less emphasis placed on assessment for learning to feed forward into future practice. This balance of attention can have significant unintended consequences. Accidental performance may be rewarded over understanding and the learning gained from mistakes is excluded from the assessment process. The 'Student-Tutor Consensus Assessment' was created to rebalance assessment weighting from being exclusively outcomes focussed, and to encourage students to apply a similar critical lens to events as the paramedics assessing them.

Illustrating the dilemma: Student case studies

Jeff and June are both paramedic students attempting practical assessments. A tutor is assessing them in accordance with a prescriptive rubric, which sees marks deducted for errors or omissions.

Case 1

Jeff attempts a chest pain scenario. His history-taking and patient examination are both limited and consequently several patient findings are not discovered. He manages to execute a suitable path of treatment, which results in an improvement to the patient's condition. During a debrief discussion with his assessor, it is apparent that Jeff was unaware of his practice omissions, and demonstrates a poor understanding of the underlying disease features. Jeff satisfies a majority of the assessment criteria which have an emphasis on critical outcomes and passes his exam.

Case 2

June responds to a case of patient breathlessness. She arrives at the decision that several of the patient's features (including an extensive history of asthma) suggest that asthma was a probable diagnosis. June commits to asthma management pathway. With no patient improvement following her initial actions, she methodically critiqued the case asking herself 'what was she missing?' Realising that she had forgotten to record a blood glucose level, she immediately reviews her approach. Sharing her understanding of the sequela of increased respiratory rates associated with ketoacidosis, she suggests that her initial diagnosis was probably incorrect, and modifies her management appropriately. June fails the assessment due to her initial incorrect reasoning and critical errors.

It can be argued that Jeff's actions were risk adverse, which would surely be a virtue to future paramedic practice. However, with key patient data overlooked, determination of whether his actions were based on sound reasoning or chance is unclear.

Jeff is dependent on the tutor to indicate his performance and knowledge errors. For Jeff, a large amount of the learning took place during the debriefing with the tutor, yet as much of their debrief discussion occurred after the grade had been determined using the rigid grading design, little of the paramedic tutor's critique was represented on the report.

During June's debrief, she confidently led the discussion with her tutor. She identified all key case features, highlighting her errors and suggesting how she will adapt her future practice. The assessor had very little additional guidance to offer. June has clearly demonstrated her learning from the assessment. Once again, the report fails to capture this.

The focus on clinical skills performance and outcome has resulted in the prime focus of the assessments being 'of learning' as opposed to being 'for learning'. The essence of this narrow marking approach is the deduction of points for each student fault, as opposed to rewarding student learning.

These cases illustrate one of the concerns faced in our capstone subject that approaches to the assessment of paramedics in training focus exclusively on outcomes. This emphasis was potentially sending the wrong signals to students about what constituted 'good' performance in learning and the attributes considered important to a practising paramedic. Concerns about students' approaches to study and grade seeking behaviours were another prompt for the subject redesign. It was considered a requirement to modify aspects of the existing teaching in an attempt to refocus student attention on learning rather than just performing to achieve good grades (1).

Over the past decade some literature has focussed on reframing assessment to integrate students' judgements about their own learning as a normal part of assessment activities. Boud argued 'the key to learning in complex settings is to be able to "look again", to monitor one's own performance, to see one's own learning in the context in which it is deployed' (2). Themes within this thread emphasise the importance of practice to enable students to calibrate their judgements over time (3), and the aligning of assessment with long term learning through 'sustainable assessment' (4,5). Assessment that helps students to develop the capability to make judgements about their own performance and learning needs can be used to develop reflective practitioners and self-regulated learners (6). Existing challenges are noted when it comes to the 'readiness' of graduates to undertake the role of a beginning paramedic (7), yet it is commonplace for educators to exclude students from the assessment process (2). There is an abundance of literature focused on reflective practice and reflection on practice within disciplinary groups (8-10). Reflection has also been associated with the development of 'professional thinking' (11). In teaching, however, it is still common for student tasks involving reflection to require tutor evaluations of the subjective knowledge being presented (8).

The practice of placing all of the responsibility for assessment in the hands of an assessor maintains a student dependence on others for judgement. This is considered at odds with the goals of training professionals who work mostly unsupervised (12). These ideas heavily influenced our assessment redesign.

Evaluating assessment redesign: Action research methodology

This paper presents the paramedic-specific context of the research findings obtained from a student-tutor consensus assessment component of a broader paramedic action research project (13). This broader study focussed on the evaluation of the effectiveness of a capstone paramedic practice subject in preparing students for the transition to the paramedic role. Carr and Kemmis (14) explain action research as enquiry undertaken by participants to improve their own practices and their understanding of these practices and their context. Action research involves a cycle of identifying a local 'real life' problem situation, taking action to improve that situation and evaluating the effect of the actions to contribute to future improvement and learning. It contributes to the body of knowledge through sharing learning from the process and outcomes with the wider community. In our case, the problem situation was the capstone topic and its connection to real life paramedic practice, which had been subject to some criticism. The action taken was to redesign the subject with particular attention to assessment components and their influence on developing students as critical reflective out-of-hospital practitioners (13). One part of the change, analysed in this paper, was the redesign of the practical clinical simulation assessment to incorporate and value students' clinical reasoning and their judgement about their practical performance.

Borrowing directly from on-road customs, the assessment redesign was deliberately based around the paramedic process of care (15), with criteria acknowledging recognised practice features of the paramedic role. Grading of clinical outcomes was retained, but now reduced to only represent 50% of the overall score. The total grade now also reflects student-tutor calibrated judgement of performance (50% of the score).

Implementing the student-tutor consensus approach

The application of the new approach follows a chronological series of steps. First, students attempt the practical scenarios while being observed by their paramedic assessors. Step 1 remains unchanged from traditional assessment practices with the tutor applying their judgement to the student performance and the outcomes of the case. Step 1, which is weighted at 50% of the assessment grade, retains consequences to student marks if mistakes are made which may foreseeably be linked to poor practice or potential patient harm. While the tutor completes this step during the student observation stage

of the scenario, they deliberately withhold their assessment decisions until the subsequent steps are complete. Step 2 is student driven. They are required to determine whether they had been able to satisfy a predetermined set of criteria linked to the holistic paramedic practices, voicing justification for their decision to their paramedic assessor. Once the student appraisal has been noted, step 3 requires the tutor to apply their judgement to the same criteria. Where there is disagreement between the student and tutor judgements, further discussions target this learning opportunity. Consensus provides the student with affirmation of their effectiveness. The two-way assessment conversation promotes a calibration of student judgement with their paramedic tutor's judgement. This approach appropriately rewards the student for correctly self-identifying errors, while identifying non-deliberate or excessively self-critical practice. The consensus score, which is also valued at 50% of the assessment score, is added to original paramedic tutor's score (step 1) to provide a balanced grade, reflecting both case outcomes and effective student awareness of their own performance (see Figure 1).

Data collection methods

Participants were recruited from the 2015 student cohort in the capstone undergraduate paramedic topic (this was the first cohort to experience the assessment methodology).

Ethics

Ethics approval was obtained from Flinders University Human Research Ethics Committee. Information about the study was advertised to participants via a university web platform associated with the subject. Participants were advised through the announcement that their participation was entirely voluntary and that the act of completing the paper-based questionnaire would be indicating consent. This message was repeated to participants during the administration of the questionnaire, which was performed by a university staff member who had no conflict of interest either in matters of student progress or research outcomes. All questionnaires were fully de-identified, with no ability for any of the surveys to be traced back to individual students. The questions relevant to this component of the study asked participants to rate their agreement with statements as: strongly disagree (SD), disagree (D), neither agree or disagree (N), agree (A) or strongly agree (SA).

The statements included:

1. The scenarios effectively combined my knowledge, reasoning and practical skills
2. Self-assessment is an important skill for paramedics
3. I found the student-tutor consensus marking format:
 - a. Fair
 - b. Effective for my learning
 - c. Improved my ability to critically analyse my practice
 - d. Helped me to develop skills I can use in my future profession.

Figure 1. Student-tutor consensus grading model

Results

Ninety of the 94 eligible participants responded to the survey. In summary, 96.6% of students agreed or strongly agreed that scenarios effectively combined knowledge, reasoning and practical skills and 96.6% either agreed or strongly agreed that self-assessment is an important skill for paramedics. A total of 87.8% found the student-tutor consensus marking format fair (strongly agreed or agreed with this statement), 91.1% found it effective for their learning, 94.4% found it improved their ability to critically analyse their practice and 85.6% found it helped them to develop skills for their future profession.

Discussion

As the project set out to evaluate student perceptions of the value and effectiveness of the innovative assessment approach, these results were pleasing. All the findings demonstrate overwhelming broad student agreement across all domains of the questionnaire. Borrowing heavily from recognised industry practices is considered to be central to the successful introduction to both paramedic tutors and student cohorts. Both groups readily embraced the new

approach, with both groups independently acknowledging that it was more akin to on-road conventions than traditional classroom based assessments. Incorporating a practice into teaching and assessment design which replicates industry approaches aligns well with effective work integrated learning recommendations (16). The level of voluntary participation in the study was also noteworthy, with only four students electing not to take part. The data reflects the views of nearly 85% of the student cohort. This provides a powerful indication of the student voice when considered alongside the much lower typical response rates encountered with routine student evaluations of teaching.

The assessment redesign witnesses a dramatic shift, moving from long traditions of penalising student mistakes. Tutor judgements have been extended to acknowledge learning occurring as a result of an assessment practice, instead of being solely performance driven. At an early stage in introducing the approach, a small group of students did express dissatisfaction with no longer being able to achieve 'chance' outcome scores. This validated the academic intent of eliminating 'false positives' from student results and ensuring grades were a true reflection of student capability.

Sustainability in assessment practices is indicated through broad student agreement about the value for the approach to their practice beyond graduation (17).

Conclusion

The role of a paramedic requires critical thinking and self-reflective practices. However, traditionally university education has placed greater emphasis on assessing students' content knowledge and less on assessing their ability to self-reflect.

We have introduced an innovation that develops student judgement and critical thinking. It actively positions the student voice in the assessment process, a domain usually reserved for the tutor. Students are often very aware when they have made errors, but are typically denied an opportunity to express this. This approach is not only well embraced by students, but offers a capacity to improve student judgement that has been industry calibrated through conversations with practising paramedics.

The real out-of-hospital world is often unpredictable, requiring a paramedic to constantly re-evaluate and question their practices. The student-tutor consensus model offers an approach to assess how well a student can 'think like a paramedic'.

Acknowledgements

We wish to thank the academic staff and students of the Flinders University Batchelor of Paramedic Science degree for their contributions to the project.

Conflict of interest

The authors declare they have no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

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