Day 7

Abstract Submissions

Assessment and Innovations in Teaching and Learning

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Escape Rooms in Paramedic Education: A systematic literature review and research agenda

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Abstract

Introduction: Paramedic students need to critically think and collaborate with others as part of their role. Adapting the popular entertainment activity "Escape Rooms" for paramedicine educational purposes was reviewed to support their clinical judgement abilities. This approach is an innovative teaching method with the potential to improve the learning experience.

Methods: A systematic review was undertaken to review existing literature on the use of this approach in higher education. Multiple databases were used to identify and include publications in the systematic literature review. These databases were selected to obtain both breadth and depth of published literature, with Google Scholar being used for its vast breadth of coverage, and specific education databases being used for a more targeted search. Due to the vast quantity of publications available through Google scholar, a specific search string was used ("Escape Room" OR "Escape Game" OR "Puzzle Room" AND "Higher Education" OR "Paramedic Education"). For the education databases (Education Research Complete, Emerald, Elsevier, ERIC (Education Resource Information Center), and Teacher Reference Center), only the term "Escape Room" was used during each search.

Results: Articles not relating to the use of an escape room style activity in an education setting were not considered. After removing duplicates, a total of 23 scholarly papers examining the use of escape rooms in an educational context were found. There was no reference to the use of this teaching methodology in paramedicine, but some health contexts were identified for nursing, pharmacy, radiology, and medicine.

Discussion: With an instructional design that addresses logistical requirements, educational escape rooms can be conducted in paramedic degrees. Time requirements for this type of teaching method are substantial, but reasonable if the activity is repeated in subsequent semesters. Educational escape rooms can be used to provide a more enjoyable student experience that immerses them as active participants in the learning environment

Conclusion: This review highlights the need for a longitudinal study to assess the implementation of an educational escape room into the paramedic curriculum. A longitudinal, multi-university study can further explore the feasibility of using a blended online/offline escape room activity in large enrolment paramedic qualifications.

Presentation

Oral - live

Biography

Anthony Weber was for over 20 years an Intensive Care and Flight Paramedic and then changed career paths to a second successful career in paramedic education, where he developed the acclaimed Bachelor of Paramedic Science, the first online paramedic program in Australia, and had since taken up positions as Deputy Dean (Learning and Teaching) within the school and now expanded to the School of Business and Law. This year Anthony was awarded the Vice-Chancellors Tier 2 award for Outstanding Contributions to Learning and Teaching. Anthony has a number of publications and book chapters and has presented at numerous conferences and symposiums. Anthony's PhD is focussed on developing a paramedic signature pedagogy.

Shannon Delport is Head of Course for Emergency and Disaster Management at CQU. Shannon is a very experienced academic who has taught in a variety of educational settings across multiple campuses and to large numbers of domestic students both in Australia and at overseas universities. Prior to joining CQUniversity, Shannon acted as Program Manager in a Bachelor of Paramedic Science Program run out of Durban, South Africa. Shannon is an active researcher whose research interests lie in the areas of paramedic education, the use of technology in paramedic education, female leadership in paramedic education and clinical aspects of paramedicine. In addition to publishing in several academic journals and academic conference papers, Shannon has completed a Masters qualification and is currently enrolled in a PhD.

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Programmatic Assessment for Improved Graduate Work-readiness: Testing 'for', not just 'of' learning

Dr James Thompson, Dr Don Houston

Flinders University, Adelaide, Australia

Abstract

Programmatic Assessment for Improved Graduate Work-readiness: Testing 'for', not just 'of' learning.

Education programs commonly adhere to an academic tradition of 'teach, then test'. Summative testing samples student knowledge and skills at the end of each subject and is used to evidence that mandated learning has been achieved. The aggregate of separate satisfactory subject results is interpreted as evidence of a competent and capable graduate. However, concerns regarding the validity and reliability of such assessment practices which fail to reflect the holistic, integrated, or authentic features of a discipline or which incentivises students to prioritise test results are now reported extensively in education literature. The relationship of these practices with deeper and sustainable student learning have also been questioned.

Programmatic assessment for learning (PAL) reflects an alternative system of learning where student understanding and abilities are calibrated against the broad expectations and standards of the discipline regardless of their current stage of study. Testing begins at the start and occurs continuously throughout the study program. As progress tests consider the full breadth of program curriculum rather than each isolated subject area, it is difficult for students to cram before tests. They must instead refocus their preparation on a deeper understanding of concepts. The more frequent assessment also generates much greater volumes of feedback to students and assessors. Multiple data points tracking the detail and trends of student development replace credentialing measures at the end of learning.

Concerns around the work-readiness of graduate paramedics have been the focus of an action research study featuring multiple iterative cycles of learning innovations and evaluation spanning more than a decade. As well as local improvement in student learning, new theory regarding paramedic learning and assessment design has been generated, in addition to new definitions for understanding and interpreting work-readiness, how this is developed and how it should be determined. A major project within the program addressed the potential for implementing PAL as part of the reforming paramedic education.

Quantitative and qualitative findings from the evaluation following the development and trialing of PAL evidence changes to student attitudes and learning behaviour, improved sustainable knowledge and skills, and perceptions of improved work-readiness.

Conclusions: Work-readiness must reflect attained and maintained proficiency across all integrated domains of the discipline, evidenced on multiple events, and include examples of the student's own

judgement. Programmatic assessment for learning approaches contribute to more valid and reliable measures of a paramedic graduate's capabilities and better support the development of the paramedic learner than traditional summative assessment of learning for credentialling.

Presentation

Oral - live

Biography

Dr James Thompson

James is a senior lecturer and teaching specialist at Flinders University in South Australia. He teaches extensively across the paramedic curriculum, as well as contributing to clinical education, nursing, and medicine programs. For over 15 years he has been a leading driver of paramedic teaching and learning innovation within South Australia, and the influence of his scholarship of teaching is evidenced broadly across multiple disciplines and institutions nationally. His research has contributed to new education theory in the areas of work-readiness, assessment design, and authentic learning. James's teaching draws heavily on his extensive clinical background within ambulance and nursing, both in Australia and the United Kingdom, where he worked as a nurse practitioner and an emergency care lecturer practitioner. James has a PhD in medical education and is a regular reviewer for higher education and paramedic journals and conferences.

Dr Don Houston

Don has spent his career in tertiary education in Australia and New Zealand as a manager, lecturer, academic developer and researcher. His main areas of interest are curriculum development, assessment and feedback, evaluation, research higher degree supervision and quality in higher education. He has extensive experience in action research and educational evaluation.

Don has a PhD in educational systems. He has (co-)authored over 30 refereed articles in journals including Quality in Higher Education, Higher Education Quarterly, Assessment and Evaluation in Higher Education and the Journal of University Teaching and Learning Practice and over 50 refereed conference papers and presentations.

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Development and evaluation of a paramedic taxonomy and progress test

Dr James Thompson, Dr Don Houston

Flinders University, Adelaide, Australia

Abstract

Development and evaluation of a paramedic taxonomy and progress test.

How a student performs on the day of a test is influenced by a myriad of variables. Examples of student results being inflated through guessing answers and chance, and conversely being hindered due to poorly constructed questions or other pressures, challenge the reliability of many tests as a tool to judge student true levels of understanding. Further concerns are linked to the capacity of a test to sample adequate breadth and depth of student understanding of a curriculum, as well as their being issues linked to binge learning efforts to optimise scores, which is known to lead to short term rather than sustainable learning.

Responding to local concerns linked to the existing use of high-stakes finals exams, firstly a holistic paramedic knowledge and skills taxonomy was constructed and validated through a collaborative process involving a range of stakeholders, including academics, industry partners, and recent graduates. Items identified on this taxonomy were then re-organised to reflect the integrated relationship of differing concepts, before being developed as multiple-choice question items and reviewed again by the consulting stakeholders.

A major component of the assessment in a final semester undergraduate capstone paramedic subject was redesigned to trial the taxonomy and test instrument. We introduced three connected progress test (PT) events across a single semester. Two spaced 10 weeks apart used the same multiple-choice test. Negative marking was used as a deterrent to guessing behaviours. The third was a final oral viva exam based on individual student results in the second progress test.

Methods. We studied patterns of results of the 103 enrolled students, including correct, incorrect, and don't know responses between the two MCQ tests, and final oral viva performance results. Additionally, we examined qualitative findings of student experiences and perceived value for the educational approach. **Results.** Mean total student scores increased by 65% between the 2 MCQ progress tests, with M = 24% increase incorrect responses, M= 9% decline in incorrect responses, and M=15% decline in don't know responses. The mean class score for the final viva was 76%. Students indicated 89.7% broad agreement for the value of the approach to their learning, with qualitative data demonstrating perceptions this approach to have been the most challenging, yet most beneficial learning of their undergraduate experience.

Conclusion. Favourable results in performance, student learning experience, and improved assessment validity and reliability support the use of progress testing within paramedicine.

Presentation

Oral - live

Biography

Dr James Thompson

James is a senior lecturer and teaching specialist at Flinders University in South Australia. He teaches extensively across the paramedic curriculum, as well as contributing to clinical education, nursing, and medicine programs. For over 15 years he has been a leading driver of paramedic teaching and learning innovation within South Australia, and the influence of his scholarship of teaching is evidenced broadly across multiple disciplines and institutions nationally. His research has contributed to new education theory in the areas of work-readiness, assessment design, and authentic learning. James's teaching draws heavily on his extensive clinical background within ambulance and nursing, both in Australia and the United Kingdom, where he worked as a nurse practitioner and an emergency care lecturer practitioner. James has a PhD in medical education and is a regular reviewer for higher education and paramedic journals and conferences.

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Don has a PhD in educational systems. He has (co-)authored over 30 refereed articles in journals including Quality in Higher Education, Higher Education Quarterly, Assessment and Evaluation in Higher Education and the Journal of University Teaching and Learning Practice and over 50 refereed conference papers and presentations.

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Using Technology in Paramedic Education in a COVID-19 World: A unique combination of software packages to promote case-based learning

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Abstract

Introduction:

Teaching should involve the thoughtful use of technologies appropriate to the learner setting and aligned with learning outcomes. We encourage case based learning with paramedic students working together in small groups. We see this as an environment for them to actively engage in learning and this aligns with my learning and teaching philosophy (McLean, 2016; Rae & MacQuarrie, 2017). This approach also features a high degree of critical reflection, so important for paramedic professional practice.

Purpose/Aim:

In 2019, We saw an opportunity to progress small group learning in our tutorial setting by introducing a software program called Nearpod. Nearpod offers a platform for presentations similarly structured to PowerPoint while offering collaborative tools for a high degree of interactivity. This enabled our groups to practice active learning, presenting findings through the Nearpod portal to share with all (McClean & Crowe, 2017).

When Nearpod was first incorporated in 2019, students commented favourably *"it's useful as it helps with a greater overview of what is being discussed and the case based learning slides are great for putting theory into practice"* . We encouraged these group presentations to reinforce important concepts and saw it as a way to motivate learners through group learning, drawing out those who may not readily contribute.

COVID-19 (SARS-CoV-2) emerged in early 2020 and challenged educators. We wanted the richness of case-based learning to remain a key focus. We took the opportunity to quickly adapt technologies in a new way, striving to maintain that strong connection with students by bringing them together virtually.

Relevance to Paramedic Education

We chose a novel approach to support our students. We combined two learning technologies to create an environment where students had both the ability to learn and contribute meaningfully to the

education of others. We continued with Nearpod, adding Collaborate, a virtual classroom system. Collaborate offered the ability for students to interact via voice, chat and video in “breakout rooms”, while still using Nearpod to maintain the interactive group work functionality, all in a seamless virtual environment.

We engaged the expertise of the Educational Design team for this new approach. Together, we constructed the approach and had it pilot tested before the session started. This helped to build our organisational capacity to meet our students’ educational needs while creating a safe educational environment in the face of this global pandemic (Wieczorek & Lear, 2018).

Implications for Paramedic Education

We work to fully evaluate the use of two teaching technologies, still in its first offering. The students enjoyed using Nearpod and we maintained a high attendance rate in Tutorials. In an email, one student said “*Using Nearpod and Collaborate together is more engaging and interactive. There is more interaction involved with Nearpod compared with just using Collaborate alone”*.

COVID-19 will remain a part of our lives for the foreseeable future. As educators, our responsibility is to continue to engage learners and encourage learning in as rich an environment as possible. We believe that the design and execution of this learning activity meets that responsibility.

Presentation

Oral - live

Biography

Dr MacQuarrie is a senior lecturer in Paramedicine and researcher in the School of Medicine's Paramedicine program at Griffith University on the Gold Coast, Australia. Dr MacQuarrie has been a paramedic since 1992 and has worked as a ground and flight paramedic (fixed wing and rotor) as well as senior management positions in EMS in Canada. He is currently a registered paramedic with the Paramedicine Board of Australia. Dr MacQuarrie is a Senior Fellow of the Higher Education Academy (SFHEA).

Mr Jonathan Purdy is a Learning and Teaching Consultant in the School of Medicine at Griffith University. Here he supports educational activities across the school including the use of learning and teaching technologies.

Dr Alex MacQuarrie

Jonathan Purdy

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A discussion on the addition of a standardised mental health assessment to the patient assessment module and OSCE examination alongside the existing module criteria.

Eleanor Tanner

University of Brighton, Brighton, United Kingdom

Abstract

Within the university curriculum, students are taught patient assessments, the secondary assessment techniques used nationwide to test the following, the cardiovascular, respiratory, abdominal, neurological and musculoskeletal systems (system exceptions may apply based on university specific procedures and module deliveries). It is a great way to educate the paramedics of the future. However, there is one component of the human body missing, a component that in its failings represented 11% of ambulatory call outs in 2019. Mental health. In this presentation, I aim to show why it is important for mental health assessments to become a part of the paramedics tool kit by presenting ways in which mental health assessments can be taught and examined (most commonly through OSCEs/OSPEs) to align with the style in which physical assessments are currently directed within the university curriculum. This will include an introduction of systematic questioning followed by structured assessments for four of the most prevalent mental health illnesses (depression, generalised anxiety disorder, OCD and PTSD). The frameworks for each have been generated from collected secondary sources and first-hand inputs from students and educators into the best ways in which these critical components can be learned and examined. Assessment and topic review allows for the development of mental health knowledge and continued practice makes room for achievements up to a high standard as well as ensuring commitment to memory. Student paramedics as a population rely on the education they receive to ensure they are as equipped as possible to become paramedics capable of autonomous practice where appropriate and to ensure their underpinning knowledge enhances their scope of practice. Omitting mental health assessment in this module places emphasis on the rhetoric that mental health is not as important as physical health. Students are exposed to real life mental health crises within the placement environment and have no simulation, academic or taught resources to resort back to. The introduction of structured lectures to teach students the theory behind mental health and practical days to practice and display the assessment will also be discussed with the implications to teaching hours.

Presentation

Oral - pre-recorded

Biography

Hi, I'm Eleanor Tanner, I am a second-year paramedic student at the University of Brighton. I have recently also taken up the role of South East representative on the College of Paramedics student council.

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Introducing an electronic portfolio (ePortfolio) to improve governance of Advanced Paramedic Practitioner programmes: A London Ambulance Service case study

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Abstract

Introduction

As identified in the 'NHS Five Year Forward View' (NHS, 2014) and subsequent reviews, the NHS faces challenges in the context of a changing health and social care environment. In particular, the need to adapt to meet the needs of patients and communities in terms of an aging population and preventing ill health is clear. (DoH, 2010). Advanced Clinical Practice (ACP) has been identified as part of the solution and has been defined by Health Education England (HEE) as encompassing four pillars (Clinical, Education, Research and Leadership) (HEE, 2017).

ACP schemes already operate in hospital and primary care settings and Advanced Paramedic Practitioner (APP) programmes are becoming increasingly common in UK ambulance services. With the creation of the Centre for Advancing Practice within England, as well as a need to submit a work-based placed assessment for national examinations such as the College of Paramedics Diploma in Primary and Urgent Care, and future requirements to join the advanced practice directory, good governance is required to facilitate the credentialing process as well as maintaining employer requirements.

Purpose / Aim

Educational, clinical governance and clinical supervision records have traditionally been maintained using paper-based portfolios. Whilst arguably adequate for programmes employing a small number of clinicians, as schemes expand, a robust system is required to facilitate the requirements of employers and governing bodies. Electronic Portfolios (ePortfolios) offer a potential solution.

The usability of ePortfolios for advanced practice staff will be discussed in the context of the implementation of an e-portfolio for Advanced Paramedic Practitioner Urgent Care (APP-UC) within London Ambulance Service NHS Trust (LAS).

The aim of ePortfolios is to reproduce the paper-based portfolio to achieve an easy-to-use system, accessible from any location, which allows for evidence to be recorded, audited and linked to external credential requirements such as the HEE Advanced Practice directory.

Relevance to paramedic education

Education is a core component of advanced practice schemes within primary care encompassing initial the induction, employer education and training, postgraduate study and ongoing Continuing Professional Development (HEE, 2021). The implementation of an ePortfolio system for APP-UC in LAS has outlined many benefits to organisations, clinical managers and individual clinicians. This includes:

- access to the portfolio on any internet connected device regardless of the clinical setting
- backup in case of loss or damage
- instant notification of completion for practice supervisors and managers
- linking records to credentialing criteria
- generation of compliance reports

Implications for paramedic education

Introducing ePortfolio solutions across paramedic education and clinical settings improves the efficiency of data collection for capabilities and competencies. In particular this allows for live progress reports and the opportunity to identify at an early stage if an action plan or additional support is required. ePortfolios should be introduced within a sound, programme-specific, governance structure.

In the future, introducing ePortfolios within the ambulance service that are linked to bodies such as the HCPC, COP, HEE and RCEM would improve the process of fulfilling registration and credentialling requirements, as well as enable transferability of staff portfolio across different care settings.

Presentation

Static Poster

Biography

The Advanced Paramedic Practitioner for Urgent Care (APP-UC) programme is an innovative programme within the London Ambulance Service NHS Trust. Since its initial pilot in 2017 operating in the Croydon area, the scheme has expanded to cover all areas of London with 8 cars now operational. Patients presenting with urgent care needs are assessed and managed by an APP operating from a solo response car, dispatched by another APP based in the Emergency Operations Centre (EOC).

A diverse range of presentations are targeted such as minor illness (e.g. urinary tract infections, respiratory infections, vertigo, ENT), minor injury (sprains and strains, patella dislocations, lacerations and other wounds) and chronic illness (e.g. asthma, COPD, diabetes). Additionally, complex presentations requiring clinical leadership to support patients, families and other clinicians are attended when requested (e.g. end of life care, patients lacking mental capacity)

APPs are educated both internally and through a funded MSc in Advanced Practice. Placements and rotational working through General Practice and Urgent Care Centres are also important features of the scheme that increase exposure to presentations that may be encountered in the prehospital environment. Clinical supervision is undertaken regularly with senior clinicians within the programme and other practitioners during rotation and placements, as well as peer review to ensure that support for continuing education has a strong focus.

As well as an enhanced level of education, APPs also have access to supplementary pharmacological interventions (e.g. analgesia, antibiotics, antiemetics, steroids, inhalers, end of life care medications) and undertaken additional clinical skills (e.g. point of care blood testing, otoscopy/fundoscopy, patella relocation, wound closure/management - specialist dressings, adhesive strips, glue, sutures). A pilot for prehospital independent prescribing will also be undertaken soon.

As well as the clinical aspects of the role, the remaining pillars of advanced practice are incorporated with additional education and opportunities to undertaken portfolio work for educational, research and leadership projects.

Title (maximum of 50 words)
Enter the FULL TITLE of your submission. This will be used for printing in the final programme.

Objective assessment of CPR performance as an aid to self-directed learning

Authors and affiliations
You MUST enter the names of ALL authors here - including yourself if you are an author - in the order in which you wish them to appear in the printed text. Names omitted here will NOT be printed in the author index or the final program

Mr Kevin Mackie – Lead Educator, Resuscitation Council UK and Director, KCM Training Ltd

Dr Jonathan Smart – Global Product Development Director, Innosonian Europe

Abstract
Please enter an abstract of your paper/submission (max 500 words). Please ensure that you do not include any identifiable data within your text or images.

Introduction:
There is strong evidence that subjective assessment of CPR, even by experienced instructors, is a poor indicator of quality of CPR being performed on a resuscitation manikin. The authors conducted research using a Brayden Pro manikin that yielded statistically significant data suggesting that there is significant over-estimation of CPR performance by instructors when compared to data derived from a manikin (Table 1).

Table 1. Mean (%) score and standard deviation (SD) for each group.

	Objective score % mean, (SD)	Subjective score % mean, (SD)	
Group 1. Laypersons (n=26)	78 (8.0)	87 (6.6)	p<0.01
Group 2. Health professionals (n=26)	84 (5.4)	93 (4.4)	p<0.01
Group 3. Emergency Service (n=26)	82 (9.8)	92 (6.5)	p<0.01

Purpose / Aim
The European Resuscitation Council and Resuscitation Council UK recommend that emerging technologies be used to improve the quality of CPR both in practise and during training. The Covid pandemic necessitated a change in training strategies that minimised face-to-face contact between learners and instructors. Innosonian Europe has developed a Brayden On-Line self-directed learning package that has a number of benefits. It minimises face-to-face interaction, creates a learner database (with automated certification) and allows repeated practice and assessment using objective feedback.

This presentation will demonstrate the benefits of objective feedback using new technologies.

Relevance to paramedic education
CPR training is a fundamental skill that is practised and learned throughout a paramedic's career. This presentation will explore the benefits of using objective feedback on CPR performance in simulated environments.

Implications for paramedic education
Self-directed learning may help reduce face-to-face contact with instructors and allow for easy re-certification of skills at any time of the day or night. This is particularly useful if the technology is available within the workplace.

Permission to publish (delete as appropriate)

I give/~~do not give~~ permission for the College of Paramedics to publish my submission on electronic media if it is accepted for presentation. We will publish your abstract from the version supplied by you. It will be published exactly as submitted - this means that any errors or spelling mistakes will show. Please proofread your submission carefully.

Author approval (delete as appropriate)
I confirm/~~do not confirm~~ that this submission has been approved by all authors. (You still need to confirm even if you are the sole author.)

Author will attend
I confirm that at least one author will register in full to attend and present the paper at the Conference. If I/we have opted to pre-record the presentation, or I am submitting a poster or an animation, I understand that I/we are expected to attend for a live Q and A session at an agreed time.

Please choose your preferred means of presentation: (delete other options)

Oral live

Biographies

Kevin Mackie is a freelance consultant in medical education. He is Lead Educator for Resuscitation Council UK and Director of KCM Training Ltd. Kevin first became involved in resuscitation training in 1992 when he was appointed as the first Resuscitation Officer for the RAF Medical Services. Since then he has remained an active ALS Instructor and became an educator for RCUK in 2003 and Lead Educator in 2015. His recent research interests include: community-based CPR, CPR training and giving feedback in simulation education.

Jonathan Smart is the Global Product Development Director for Innosonian Europe (IE). He has been a key member of the team that has developed the current Brayden range of Brayden manikins. Jonathan's employment immediately prior to IE was with South East Coast Ambulance NHS Trust (SECAmb) as Research Manager. It was during

his time at SECAmb (as a volunteer CFR) that he became aware of Brayden and the potential it had to easily teach good quality CPR.